DCR-TRV738E/TRV740/ TRV740E/TRV840

RMT-814

SERVICE MANUAL

Ver 1.0 2002. 03

Revision History

Photo : DCR-TRV740E

US Model
Canadian Model
DCR-TRV740/TRV840
AEP Model
DCR-TRV738E/TRV740E
Australian Model
Hong Kong Model
Chinese Model
East European Model
North European Model
Russian Model
DCR-TRV740E
E Model
DCR-TRV740/TRV740E/TRV840
Korea Model
DCR-TRV740
Tourist Model
DCR-TRV740/TRV740E
Argentina Model
DCR-TRV840

M2000 MECHANISM

Link

SPECIFICATIONS	BLOCK DIAGRAMS	PRINTED WIRING BOARDS
SERVICE NOTE	FRAME SCHEMATIC DIAGRAMS	ADJUSTMENTS
DISASSEMBLY	SCHEMATIC DIAGRAMS	REPAIR PARTS LIST

- For MECHANISM ADJUSTMENTS, refer to the “8mm Video MECHANICAL ADJUSTMENT MANUAL IX M2000 MECHANISM ” (9-929-861-11).
- The DCR-TRV740E uses two types of 2.5 inch LCD. For identification of the 2.5 inch LCD, see “SECTION 5. 1-5-1. LCD Type Check”.
- The DCR-TRV840 uses two types of the type SO or type CA LCD. For identification of the type SO or type CA LCD, see “SECTION 5. 1-5-1. LCD Type Check”.

On the VC-278 board

This service manual provides the information that is premised the circuit board replacement service and not intended repair inside the VC-278 board.
Therefore, schematic diagram, printed wiring board, waveforms, mounted parts location and electrical parts list of the VC-278 board are not shown.
The following pages are not shown.

Schematic diagram ..... Pages 4-23 to 4-72
Printed wiring board ..... Pages 4-87 to 4-90
Waveforms ..... Pages 4-93 to 4-95
Mounted parts location ..... Pages 4-97 to 4-98
Electrical parts list ..... Pages 6-17 to 6-25

DIGITAL VIDEO CAMERA RECORDER

SONY

COVER

Self Diagnosis Supported model

Digital Handycam

InfoLITHIUM M SERIES

MEMORY STICK

SPECIFICATIONS

Video camera recorder

System

Video recording system
2 rotary heads
Helical scanning system
Audio recording system
Rotary heads, PCM system
Quantization: 12 bits (Fs 32 kHz, stereo 1, stereo 2), 16 bits (Fs 48 kHz, stereo)
Video signal
DCR-TRV740/TRV840:
NTSC color, EIA standards
DCR-TRV738E/TRV740E:
PAL colour, CCIR standards
Recommended cassette
Hi8/Digital8 video cassette
Recording/playback time
DCR-TRV740/TRV840:
(using 120 min. Hi8 video cassette)
DCR-TRV738E/TRV740E:
(using 90 min. Hi8 video cassette)
SP mode: 1 hour
LP mode: 1 hour and 30 minutes
Fast-forward/rewind time
DCR-TRV740/TRV840:
(using 120 min. Hi8 video cassette)
DCR-TRV738E/TRV740E:
(using 90 min. Hi8 video cassette)
Approx. 5 min.
Viewfinder
Electric Viewfinder, Monochrome
Image device
DCR-TRV740/TRV840:
4.5 mm (1/4 type) CCD (Charge Coupled Device)
Gross: Approx. 1 070 000 pixels
Effective: Approx. 690 000 pixels (Camera mode)
Approx. 1 000 000 pixels (Memory mode)
DCR-TRV738E:
3.8 mm (1/4.7 type) CCD (Charge Coupled Device)
Gross: Approx. 1 070 000 pixels
Effective: Approx. 690 000 pixels (Camera mode)
Approx. 1 000 000 pixels (Memory mode)
DCR-TRV740E:
3.8 mm (1/4.7 type) CCD (Charge Coupled Device)
Gross: Approx. 1 070 000 pixels
Effective (still):
Approx. 1 000 000 pixels
Effective (moving):
Approx. 690 000 pixels
Lens
Combined power zoom lens
Filter diameter 37 mm (1 1/2 in.)
15× (Optical), 420× (Digital)
Focal length
3.6 - 54 mm (5/32 - 2 1/4 in.)
When converted to a 35 mm still camera
Camera mode:
48 - 720 mm (1 15/16 - 28 3/8 in.)
Memory mode:
40 - 600 mm (1 5/8 - 23 5/8 in.)
Color temperature
Auto
Minimum illumination
7 lx (lux) (F1.6)
0 lx (lux) (in the NightShot mode)*
* Objects unable to be seen due to the dark can be shot with infrared lighting.

Input/output connectors

DCR-TRV738E:
S video output
DCR-TRV740/TRV740E/TRV840:
S video input/output
4-pin mini DIN
Luminance signal: 1 Vp-p, 75 Ω (ohms), unbalanced
DCR-TRV740/TRV840:
Chrominance signal: 0.286 Vp-p, 75 Ω (ohms), unbalanced
DCR-TRV738E/TRV740E:
Chrominance signal: 0.3 Vp-p, 75 Ω (ohms), unbalanced
DCR-TRV738E:
Audio/Video output
DCR-TRV740/TRV740E/TRV840:
Audio/Video input/output
AV MINIJACK, 1 Vp-p, 75 Ω (ohms), unbalanced, sync negative 327 mV, (at output impedance more than 47 kΩ (kilohms))
Output impedance with less than 2.2 kΩ (kilohms)/Stereo minijack (ø 3.5 mm)
DCR-TRV740/TRV740E/TRV840:
Input impedance more than 47 kΩ (kilohms)
Headphone jack
Stereo minijack (ø 3.5 mm)
USB jack
mini-B
LANC jack
Stereo mini-minijack (ø 2.5 mm)
MIC jack
Stereo minijack (ø 3.5 mm)
DCR-TRV738E:
DV output
DCR-TRV740/TRV740E/TRV840:
DV input/output
4-pin connector

LCD screen

Picture
DCR-TRV738E/TRV740/TRV740E:
6.2 cm (2.5 type)
50.3 × 37.4 mm (2 × 1 1/2 in.)
DCR-TRV840:
8.8 cm (3.5 type)
72.2 × 50.4 mm (2 7/8 × 2 in.)
Total dot number
For NTSC models and European models:
123 200 (560 × 220)
For other countries models of DCR-TRV740E:
61 600 (280 × 220)

General

Power requirements
7.2 V (battery pack)
8.4 V (AC power adaptor)
Average power consumption (when using the battery pack)
During camera recording using LCD
DCR-TRV738E:
3.4 W
DCR-TRV740:
4.3 W
DCR-TRV740E:
4.2 W
DCR-TRV840:
4.5 W
Viewfinder
DCR-TRV740/TRV840:
3.5 W
DCR-TRV738E/TRV740E:
3.4 W
Operating temperature
0°C to 40°C (32°F to 104°F)
Recommended charging temperature
10°C to 30°C (50°F to 86°F)
Storage temperature
–20°C to + 60°C (–4°F to + 140°F)
Dimensions (approx.)
207 × 101 × 85 mm
(8 1/4 × 4 × 3 3/8 in.)
Mass (approx.)
DCR-TRV738E/TRV740/TRV740E:
900 g (1 lb 15 oz)
DCR-TRV840:
930 g (2 lb)
excluding the battery pack, cassette, lens cap and shoulder strap
DCR-TRV738E/TRV740/TRV740E:
1 040 g (2 lb 4 oz)
DCR-TRV840:
1 070 g (2 lb 5 oz)
including the battery pack (NP-FM50), 120min. Hi8 cassette (DCR-TRV740/TRV840), 90min. Hi8 cassette (DCR-TRV738E/TRV740E), lens cap and shoulder strap
Supplied accessories
See page 4.

AC power adaptor

Power requirements
100 – 240 V AC, 50/60 Hz
Power consumption
23 W
Output voltage
DC OUT: 8.4 V, 1.5 A in the operating mode
Operating temperature
0°C to 40°C (32°F to 104°F)
Storage temperature
–20°C to + 60°C (–4°F to + 140°F)
Dimensions (approx.)
125 × 39 × 62 mm
(5 × 1 9/16 × 2 1/2 in.) (w/h/d)
excluding projecting parts
Mass (approx.)
280 g (9.8 oz)
excluding power cord

Battery pack

Maximum output voltage
DC 8.4 V
Mean output voltage
DC 7.2 V
Capacity
8.5 wh (1 180 mAh)
Operating temperature
0°C to 40°C (32°F to 104°F)
Dimensions (approx.)
38.2 × 20.5 × 55.6 mm
(1 9/16 × 13/16 × 2 1/4 in.) (w/h/d)
Mass (approx.)
76 g (2.7 oz)
Type
Lithium ion

"Memory Stick"

Memory
Flash memory
8MB: MSA-8A
Operating voltage
2.7 – 3.6 V
Power consumption
Approx. 45 mA in the operating mode
Approx. 130 µA in the standby mode
Dimensions (approx.)
50 × 2.8 × 21.5 mm
(2 × 1/8 × 7/8 in.) (w/h/d)
Mass (approx.)
4 g (0.14 oz)

Design and specifications are subject to change without notice.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFÉS PAR UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈSES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPÉMENTS PUBLIÉS PAR SONY.

CAUTION :
Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer.

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, through functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the B+ voltage to see it is at the values specified.
6. Flexible Circuit Board Repairing
   - Keep the temperature of the soldering iron around 270˚C during repairing.
   - Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
   - Be careful not to apply force on the conductor when soldering or unsoldering.

Unleaded solder

Boards requiring use of unleaded solder are printed with the lead-free mark (LF) indicating the solder contains no lead.
(Caution: Some printed circuit boards may not come printed with the lead free mark due to their particular size.)

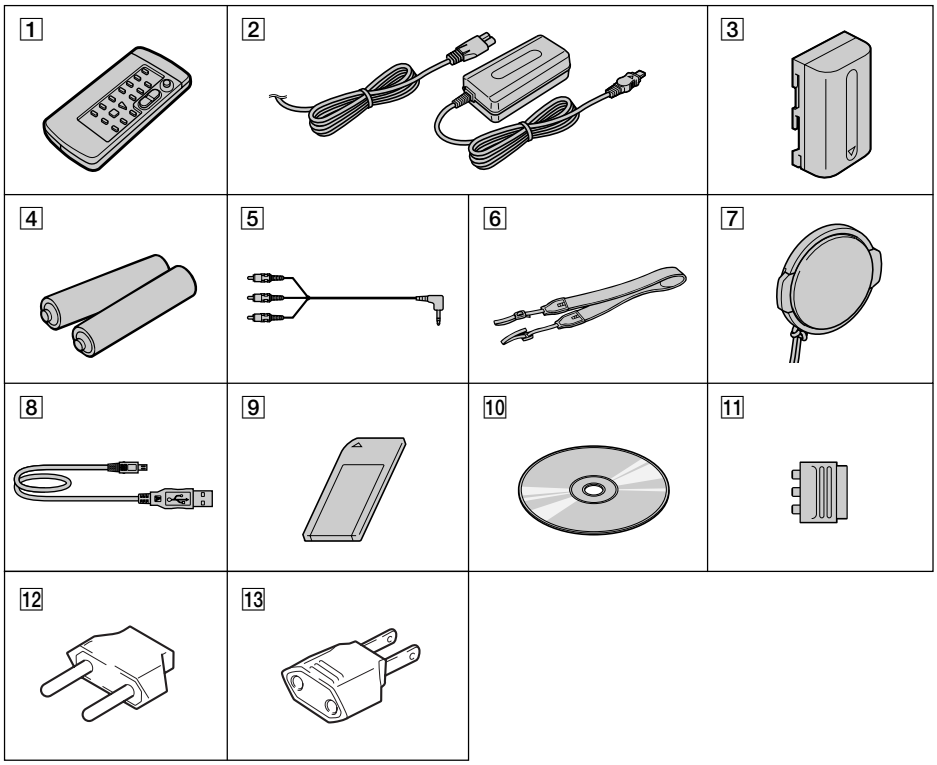
: LEAD FREE MARK

Unleaded solder has the following characteristics.

- Unleaded solder melts at a temperature about 40°C higher than ordinary solder.
  Ordinary soldering irons can be used but the iron tip has to be applied to the solder joint for a slightly longer time.
  Soldering irons using a temperature regulator should be set to about 350°C.
  Caution: The printed pattern (copper foil) may peel away if the heated tip is applied for too long, so be careful!
- Strong viscosity
  Unleaded solder is more viscous (sticky, less prone to flow) than ordinary solder so use caution not to let solder bridges occur such as on IC pins, etc.
- Usable with ordinary solder
  It is best to use only unleaded solder but unleaded solder may also be added to ordinary solder.

• SUPPLIED ACCESSORIES

Make sure that the following accessories are supplied with your camcorder.



1 **Wireless Remote Commander** (1)
2 **AC-L10A/L10B/L10C AC power adaptor** (1), **Power cord** (1)
3 **NP-FM50 battery pack** (1)
4 **Size AA (R6) battery for Remote Commander** (2)
5 **A/V connecting cable** (1.5m)(1)
6 **Shoulder strap** (1)
7 **Lens cap** (1)
8 **USB cable** (1)
9 **"Memory Stick"** (1)
10 **CD-ROM (USB Driver)** (1)
SPVD (I) : US, CND models
SPVD : For other models
11 **21-pin adaptor** (1)
For European models only
12 **2-pin conversion adaptor** (1)
DCR-TRV740: JE model/
DCR-TRV740E: JE model only
13 **2-pin conversion adaptor** (1)
DCR-TRV740: E/
TRV740E: E, HK models only

Table for difference of function

Model		DCR-TRV738E	DCR-TRV740	DCR-TRV740E		DCR-TRV840	Remark
Destination		AEP	US, CND, E, KR, JE	AEP, EE, NE, RU	E, AUS, HK, JE, CH	US, CND, E, AR	
Color System		PAL	NTSC	PAL		NTSC	
LCD	size	2.5 inch				3.5 inch	
	pixel	123k	61k	123κ	61k	123k	
	type	SH	SO	SH	SO	SO or CA	type SH and CA: with PD-156 board type SO: with PD-160 board
VTR REC		×	○				○ : with REC button

• Abbreviation
CND : Canadian model
KR : Korea model
JE : Tourist model
AUS : Australian model
HK : Hong Kong model
CH : Chinese model
EE : East European model
NE : North European model
RU : Russian model
AR : Argentina model

- The DCR-TRV740E uses two types of 2.5 inch LCD. For identification of the 2.5 inch LCD, see "SECTION 5. 1-5-1. LCD Type Check".
- The DCR-TRV840 uses two types of the type SO or type CA LCD. For identification of the type SO or type CA LCD, see "SECTION 5. 1-5-1. LCD Type Check".

TABLE OF CONTENTS

1. SERVICE NOTE

1-1. SERVICE NOTE ····· 1-1
1. POWER SUPPLY DURING REPAIRS ····· 1-1
2. TO TAKE OUT A CASSETTE WHEN NOT EJECT (FORCE EJECT) ····· 1-1
1-2. SELF-DIAGNOSIS FUNCTION ····· 1-2
1. Self-diagnosis Function ····· 1-2
2. Self-diagnosis Display ····· 1-2
3. Service Mode Display ····· 1-2
3-1. Display Method ····· 1-2
3-2. Switching of Backup No. ····· 1-2
3-3. End of Display ····· 1-2
4. Self-diagnosis Code Table ····· 1-3

2. DISASSEMBLY

2-1. 2.5 INCH LCD UNIT, PD-156/160 BOARD -1 ····· 2-2
2-2. 2.5 INCH LCD UNIT, PD-156/160 BOARD -2 ····· 2-3
2-3. 3.5 INCH LCD UNIT, PD-156/160 BOARD -1 ····· 2-4
2-4. 3.5 INCH LCD UNIT, PD-156/160 BOARD -2 ····· 2-4
2-5. BACK LIGHT ····· 2-5
2-6. FRONT PANEL SECTION ····· 2-6
2-7. SI-032 BOARD ····· 2-6
2-8. MICROPHONE ····· 2-7
2-9. CABINET (R) SECTION ····· 2-8
2-10. LENS SECTION ····· 2-9
2-11. CD-358 BOARD ····· 2-9
2-12. IRIS FLEXIBLE ASSEMBLY ····· 2-10
2-13. EVF SECTION ····· 2-11
2-14. LB-076 BOARD -1 ····· 2-11
2-15. LB-076 BOARD -2 ····· 2-12
2-16. BATTERY PANEL SECTION ····· 2-13
2-17. BATTERY TERMINAL BOARD ····· 2-13
2-18. MEMORY STICK 10P CONNECTOR ····· 2-14
2-19. CONTROL SWITCH BLOCK (SS-1380) ····· 2-14
2-20. CABINET (L) SECTION ····· 2-15
2-21. CS FRAME ASSEMBLY (25) ····· 2-15
2-22. VC-278 BOARD ····· 2-16
2-23. MECHANISM DECK ····· 2-16
2-24. CONTROL SWITCH BLOCK (CF-2500) ····· 2-19
2-25. CONTROL SWITCH BLOCK (FK-2500) ····· 2-19
2-26. HINGE SECTION ····· 2-20
2-27. CIRCUIT BOARDS LOCATION ····· 2-21
2-28. FLEXIBLE BOARDS LOCATION ····· 2-22

3. BLOCK DIAGRAMS

3-1. OVERALL BLOCK DIAGRAM (1/6) ····· 3-1
3-2. OVERALL BLOCK DIAGRAM (2/6) ····· 3-3
3-3. OVERALL BLOCK DIAGRAM (3/6) ····· 3-5
3-4. OVERALL BLOCK DIAGRAM (4/6) ····· 3-7
3-5. OVERALL BLOCK DIAGRAM (5/6) ····· 3-9
3-6. OVERALL BLOCK DIAGRAM (6/6) ····· 3-11
3-7. POWER BLOCK DIAGRAM (1/3) ····· 3-13
3-8. POWER BLOCK DIAGRAM (2/3) ····· 3-15
3-9. POWER BLOCK DIAGRAM (3/3) ····· 3-17

4. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

4-1. FRAME SCHEMATIC DIAGRAM (1/2) ····· 4-1
FRAME SCHEMATIC DIAGRAM (2/2) ····· 4-3
4-2. SCHEMATIC DIAGRAMS
• CD-358 (CCD IMAGER)
SCHEMATIC DIAGRAM ····· 4-7
• LB-076 (EVF, BACK LIGHT)
SCHEMATIC DIAGRAM ····· 4-8
• SI-032 (STEADY SHOT, LASER LINK), FP-411 FLEXIBLE
SCHEMATIC DIAGRAM ····· 4-9
• CONTROL SWITCH BLOCK (CF-2500)
SCHEMATIC DIAGRAM ····· 4-11
• PD-156 (1/2)(LCD DRIVER, BACKLIGHT)
SCHEMATIC DIAGRAM ····· 4-13
• PD-156 (2/2)(DRIVER, TIMING GENERATOR)
SCHEMATIC DIAGRAM ····· 4-15
• PD-160 (1/2)(CHA, DISPLAY DRIVE, BACK LIGHT)
SCHEMATIC DIAGRAM ····· 4-17
• PD-160 (2/2)(LCD DRIVE, TG)
SCHEMATIC DIAGRAM ····· 4-19
• LS-057 (S/T REEL SENSOR), FP-228 (DEW SENSOR), FP-299 (MODE SWITCH), FP-300 (TAPE TOP), FP-302 (TAPE END), FP-301 (TAPE LED) FLEXIBLE
SCHEMATIC DIAGRAMS ····· 4-21
• FP-410 FLEXIBLE, CONTROL SWITCH BLOCK (SS-1380)
SCHEMATIC DIAGRAM ····· 4-21

Shematic diagram of the VC-278 board are not shown.
Pages from 4-23 to 4-72 are not shown.

PRINTED WIRING BOARDS
• CD-358 (CCD IMAGER)
PRINTED WIRING BOARD ····· 4-73
• LB-076 (EVF, BACK LIGHT)
PRINTED WIRING BOARD ····· 4-74
• SI-032 (STEADY SHOT, LASER LINK)
PRINTED WIRING BOARD ····· 4-75
• FP-411 FLEXIBLE BOARD ····· 4-76
• LS-057 (S/T REEL SENSOR), FP-228 (DEW SENSOR), FP-299 (MODE SWITCH), FP-300 (TAPE TOP), FP-302 (TAPE END), FP-301 (TAPE LED)
FLEXIBLE BOARDS ····· 4-77
• FP-410 FLEXIBLE BOARD ····· 4-78
• PD-156 (LCD DRIVER, BACKLIGHT, DRIVER, TIMING GENERATOR)
PRINTED WIRING BOARD ····· 4-79
• PD-160 (CHA, DISPLAY DRIVE, BACK LIGHT, LCD DRIVE, TG)
PRINTED WIRING BOARD ····· 4-83
• FP-412 FLEXIBLE BOARD ····· 4-86

Printed wiring board of the VC-278 board are not shown.
Pages from 4-87 to 4-90 are not shown.

4-4. WAVEFORMS ····· 4-91

Waveforms of the VC-278 board are not shown.
Pages from 4-93 to 4-95 are not shown.

4-5. MOUNTED PARTS LOCATION ····· 4-96

Mounted parts location of the VC-278 board is not shown.
Pages from 4-97 to 4-98 are not shown.

5. ADJUSTMENTS

1. Adjusting items when replacing main parts and boards ··5-2
5-1. CAMERA SECTION ADJUSTMENT ····· 5-4
1-1. PREPARATIONS BEFORE ADJUSTMENT (CAMERA SECTION) ····· 5-4
1-1-1. List of Service Tools ····· 5-4
1-1-2. Preparations ····· 5-5
1-1-3. Precaution ····· 5-7
1. Setting the Switch ····· 5-7
2. Order of Adjustments ····· 5-7

3. Subjects ····· 5-7
1-2. INITIALIZATION OF 8, A, B, C, D, E, F, 1B, 1C, 1E, 1F PAGE DATA ····· 5-8
1-2-1. INITIALIZATION OF A, D PAGE DATA ····· 5-9
1. Initializing the A, D Page Data ····· 5-9
2. Modification of A, D Page Data ····· 5-9
3. A Page Table ····· 5-9
4. D Page Table ····· 5-10
1-2-2. INITIALIZATION OF B, 1B PAGE DATA ····· 5-11
1. Initializing the B, 1B Page Data ····· 5-11
2. Modification of B, 1B Page Data ····· 5-11
3. Loader writing inhibit mode setting ····· 5-11
4. B Page Table ····· 5-11
5. 1B Page Table ····· 5-11
1-2-3. INITIALIZATION OF 8, C, 1C PAGE DATA ····· 5-12
1. Initializing the 8, C, 1C Page Data ····· 5-12
2. Modification of 8, C, 1C Page Data ····· 5-12
3. 8 Page Table ····· 5-13
4. C Page Table ····· 5-13
5. 1C Page Table ····· 5-15
1-2-4. INITIALIZATION OF E, F, 1E, 1F PAGE DATA ····· 5-16
1. Initializing the E, F, 1E, 1F Page Data ····· 5-16
2. Modification of E, F, 1E, 1F Page Data ····· 5-16
3. E Page Table ····· 5-17
4. F Page Table ····· 5-18
5. 1E Page Table ····· 5-19
6. 1F Page Table ····· 5-19
1-3. CAMERA SYSTEM ADJUSTMENTS ····· 5-20
1. HALL Adjustment ····· 5-20
2. Flange Back Adjustment (Using Minipattern Box) ····· 5-21
3. Flange Back Adjustment (Using Flange Back Adjustment Chart and Subject More Than 500m Away) ····· 5-22
3-1. Flange Back Adjustment (1) ····· 5-22
3-2. Flange Back Adjustment (2) ····· 5-22
4. Flange Back Check ····· 5-23
5. Mechanical Shutter Adjustment ····· 5-23
6. Black Defective CCD Adjustment ····· 5-24
7. Picture Frame Setting ····· 5-24
8. Color Reproduction Adjustment ····· 5-25
9. Auto White Balance & LV Standard Data Input ····· 5-26
10. Auto White Balance Adjustment ····· 5-27
11. White Balance Check ····· 5-28
12. Steady Shot Check ····· 5-29
1-4. ELECTRONIC VIEWFINDER SYSTEM ADJUSTMENT ····· 5-30
1. VCO Adjustment (VC-278 board) ····· 5-30
2. RGB AMP Adjustment (VC-278 board) ····· 5-31
3. Contrast Adjustment (VC-278 board) ····· 5-31
1-5. LCD SYSTEM ADJUSTMENT ····· 5-32
1-5-1. LCD Type Check ····· 5-32
1-5-2. LCD SYSTEM ADJUSTMENT (PD-156 board) ····· 5-33
1. VCO Adjustment (PD-156 board) ····· 5-33
2. RGB AMP Adjustment (PD-156 board) ····· 5-33
3. Contrast Adjustment (PD-156 board) ····· 5-34
4. COM AMP Adjustment (PD-156 board) ····· 5-34
5. V-COM Adjustment (PD-156 board) ····· 5-35
6. White Balance Adjustment (PD-156 board) ····· 5-35
1-5-3. LCD SYSTEM ADJUSTMENT (PD-160 board) ····· 5-36
1. VCO Adjustment (PD-160 board) ····· 5-36
2. PSIG Gray Adjustment (PD-160 board) ····· 5-36
3. RGB AMP Adjustment (PD-160 board) ····· 5-37
4. Black Limit Adjustment (PD-160 board) ····· 5-37
5. Contrast Adjustment (PD-160 board) ····· 5-38
6. Center Level Adjustment (PD-160 board) ····· 5-38
7. V-COM Adjustment (PD-160 board) ····· 5-39
8. White Balance Adjustment (PD-160 board) ····· 5-39
5-2. MECHANISM SECTION ADJUSTMENT ····· 5-40
2-1. Hi8/STANDARD 8 MODE ····· 5-40
2-1-1. OPERATING WITHOUT CASSETTE ····· 5-40
2-1-2. TAPE PATH ADJUSTMENT ····· 5-40
1. Preparations for Adjustment ····· 5-40
2-2. DIGITAL8 MODE ····· 5-41
2-2-1. HOW TO ENTER RECORD MODE WITHOUT CASSETTE ····· 5-41
2-2-2. HOW TO ENTER PLAYBACK MODE WITHOUT CASSETTE ····· 5-41
2-2-3. OVERALL TAPE PATH CHECK ····· 5-41
1. Recording of the tape path check signal ····· 5-41
2. Tape path check ····· 5-41
5-3. VIDEO SECTION ADJUSTMENT ····· 5-42
3-1. PREPARATIONS BEFORE ADJUSTMENTS ····· 5-42
3-1-1. Equipment to Required ····· 5-42
3-1-2. Precautions on Adjusting ····· 5-43
3-1-3. Adjusting Connectors ····· 5-44
3-1-4. Connecting the Equipment ····· 5-44
3-1-5. Alignment Tape ····· 5-45
3-1-6. Input/output Level and Impedance ····· 5-46
3-2. SYSTEM CONTROL SYSTEM ADJUSTMENT ····· 5-47
1. Initialization of 8, A, B, C, D, E, F, 1B, 1C, 1E, 1F Page Data ····· 5-47
2. Serial No. Input ····· 5-47
2-1. Company ID Input ····· 5-47
2-2. Serial No. Input ····· 5-47
3-3. SERVO AND RF SYSTEM ADJUSTMENT ····· 5-49
1. REEL FG Adjustment (VC-278 board) ····· 5-49
2. PLL f_0 & LPF f_0 Adjustment (VC-278 board) ····· 5-49
3. Switching Position Adjustment (VC-278 board) ····· 5-50
4. AGC Center Level and APC & AEQ Adjustment ····· 5-50
4-1. Preparations before adjustments ····· 5-50
4-2. AGC Center Level Adjustment (VC-278 board) ····· 5-50
4-3. APC & AEQ Adjustment (VC-278 board) ····· 5-51
4-4. Processing after Completing Adjustments ····· 5-51
5. PLL f_0 & LPF f_0 Fine Adjustment (VC-278 board) ····· 5-52
6. Hi8/Standard8 Switching Position Adjustment (VC-278 board) ····· 5-52
7. CAP FG Duty Adjustment (VC-278 board) ····· 5-53
3-4. VIDEO SYSTEM ADJUSTMENTS ····· 5-54
1. 54MHz/66MHz Origin Oscillation Adjustment (VC-278 board) ····· 5-54
2. S VIDEO OUT Y Level Adjustment (VC-278 board) ····· 5-54
3. S VIDEO OUT Chroma Level Adjustment (VC-278 board) ····· 5-55
4. VIDEO OUT Y, Chroma Level Check (VC-278 board) 5-55
5. Hi8/Standard8 Y/C Output Level Setting (VC-278 board) ····· 5-56
6. Hi8/standard 8mm AFC f_0 Adjustment (VC-278 board) ····· 5-56
3-5. AUDIO SYSTEM ADJUSTMENTS ····· 5-57
1. Hi8/Standard8 AFM BPF f_0 Adjustment (VC-278 board) ····· 5-57
2. Hi8/Standard8 AFM 1.5 MHz Deviation Adjustment (VC-278 board) ····· 5-58
3. Hi8/Standard8 AFM 1.7 MHz Deviation Adjustment (VC-278 board) ····· 5-58
4. Digital8 Playback Level Check ····· 5-58
5. Overall Level Characteristics Check ····· 5-58
6. Overall Distortion Check ····· 5-58
7. Overall Noise Level Check ····· 5-59
8. Overall Separation Check ····· 5-59
5-4. SERVICE MODE ····· 5-60
4-1. ADJUSTMENT REMOTE COMMANDER ····· 5-60
1. Using the Adjustment Remote Commander ····· 5-60
2. Precautions Upon Using the Adjustment Remote Commander ····· 5-60
4-2. DATA PROCESS ····· 5-61
4-3. SERVICE MODE ····· 5-62

1. Setting the Test Mode ····· 5-62 ·····
2. Emergence Memory Address ····· 5-62 ····
2-1. EMG Code (Emergency Code) ····· 5-62 ···
2-2. MSW Code ····· 5-63 ·····
3. Bit Value Discrimination ····· 5-64 ·····
4. Switch check (1) ····· 5-64 ·····
5. Switch check (2) ····· 5-64 ·····
6. Switch check (3) ····· 5-65 ·····
7. Switch check (4) ····· 5-65 ·····
8. Record of Use check (1) ····· 5-65 ·····
9. Record of Use check (2) ····· 5-66 ·····
10. Record of Self-diagnosis check ····· 5-66 ···

6. REPAIR PARTS LIST

6-1. EXPLODED VIEWS ····· 6-1 ·····
6-1-1. OVERALL SECTION ····· 6-1 ·····
6-1-2. CABINET (L) SECTION-1 ····· 6-2 ·····
6-1-3. CABINET (L) SECTION-2 ····· 6-3 ·····
6-1-4. LENS, EVF SECTION ····· 6-4 ·····
6-1-5. CABINET (R) SECTION ····· 6-5 ·····
6-1-6. LCD SECTION (2.5 INCH LCD MODEL)
(TRV738E/TRV740/TRV740E) ····· 6-6 ·····
6-1-7. LCD SECTION (3.5 INCH LCD MODEL) (TRV840) ··6-7
6-1-8. CASSETTE COMPARTMENT ASSY, DRUM ASSY ··6-8
6-1-9. LS CHASSIS BLOCK ASSEMBLY ····· 6-9 ···
6-1-10. MECHANICAL CHASSIS BLOCK ASSEMBLY-1 ··6-10
6-1-11. MECHANICAL CHASSIS BLOCK ASSEMBLY-2 ··6-11
6-2. ELECTRICAL PARTS LIST ····· 6-12 ····

Parts list of the VC-278 board are not shown.
Pages from 6-17 to 6-25 are not shown.

* Color reproduction frame are shown on page 181.

COVER

SECTION 1
SERVICE NOTE

1-1. SERVICE NOTE

1. POWER SUPPLY DURING REPAIRS

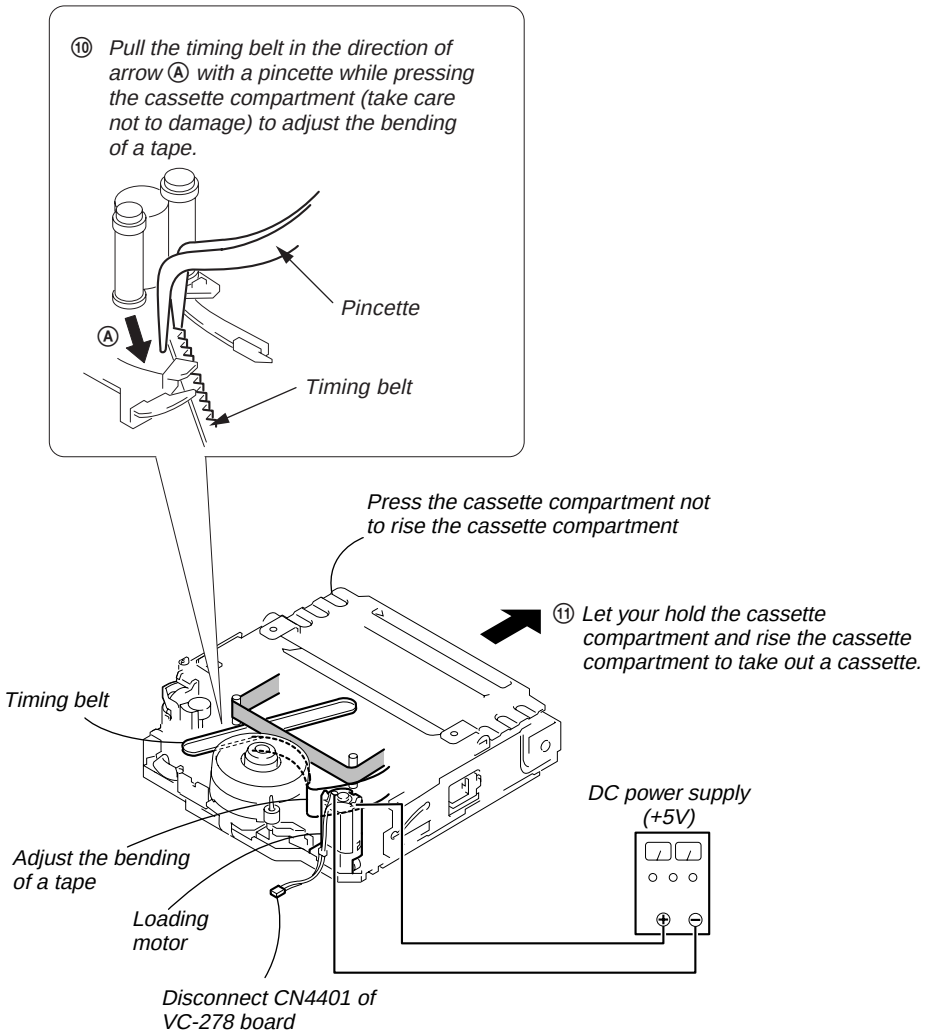
In this unit, about 10 seconds after power is supplied (8.4V) to the battery terminal using the service power code (J-6082-223-A), the power is shut off so that the unit cannot operate.
These following two methods are available to prevent this. Take note of which to use during repairs.

Method 1.
Use the DC IN terminal. (Use the AC power adaptor.)

Method 2.
Connect the adjustment remote commander RM-95 (J-6082-053-B) to the LANC jack, and set the HOLD switch to the “ADJ” side.

2. TO TAKE OUT A CASSETTE WHEN NOT EJECT (FORCE EJECT)

① Refer to 2-6. to remove the front panel section.
② Refer to 2-9. to remove the cabinet (upper) section.
③ Refer to 2-9. to remove the cabinet (R) section.
④ Refer to 2-10. to remove the lens section.
⑤ Refer to 2-13. to remove the EVF section.
⑥ Refer to 2-16. to remove the battery panel section.
⑦ Refer to 2-19. and 2-21. to remove the cabinet (L) section. (Include the CS frame assembly and control switch block (SS-1380).)
⑧ Disconnect CN4401 (2P) of VC-278 board.
⑨ Add +5V from the DC POWER SUPPLY and unload with a pressing the cassette compertment.


⑩ Pull the timing belt in the direction of arrow Ⓐ with a pincette while pressing the cassette compartment (take care not to damage) to adjust the bending of a tape.
Pincette
Ⓐ
Timing belt
Press the cassette compartment not to rise the cassette compartment
⑪ Let your hold the cassette compartment and rise the cassette compartment to take out a cassette.
Timing belt
DC power supply (+5V)
Adjust the bending of a tape
Loading motor
Disconnect CN4401 of VC-278 board

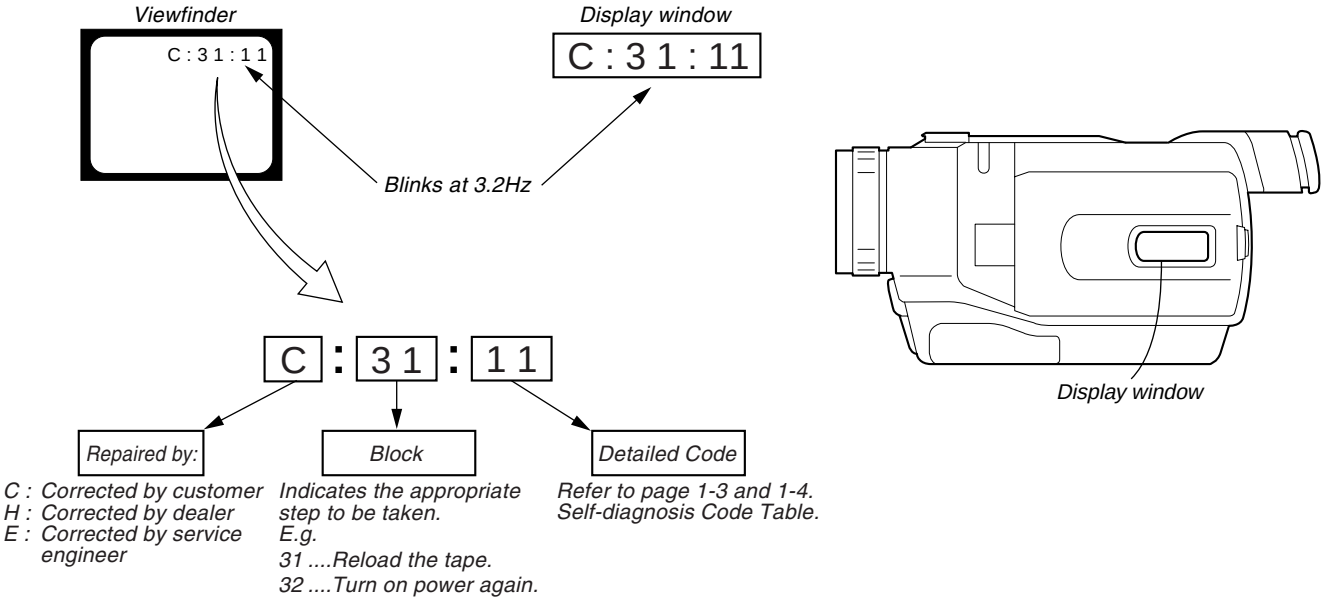
1-2. SELF-DIAGNOSIS FUNCTION

1. Self-diagnosis Function

When problems occur while the unit is operating, the self-diagnosis function starts working, and displays on the viewfinder or Display window what to do. This function consists of two display; self-diagnosis display and service mode display.
Details of the self-diagnosis functions are provided in the Instruction manual.

2. Self-diagnosis Display

When problems occur while the unit is operating, the counter of the viewfinder or Display window shows a 4-digit display consisting of an alphabet and numbers, which blinks at 3.2 Hz. This 5-character display indicates the "repaired by:", "block" in which the problem occurred, and "detailed code" of the problem.

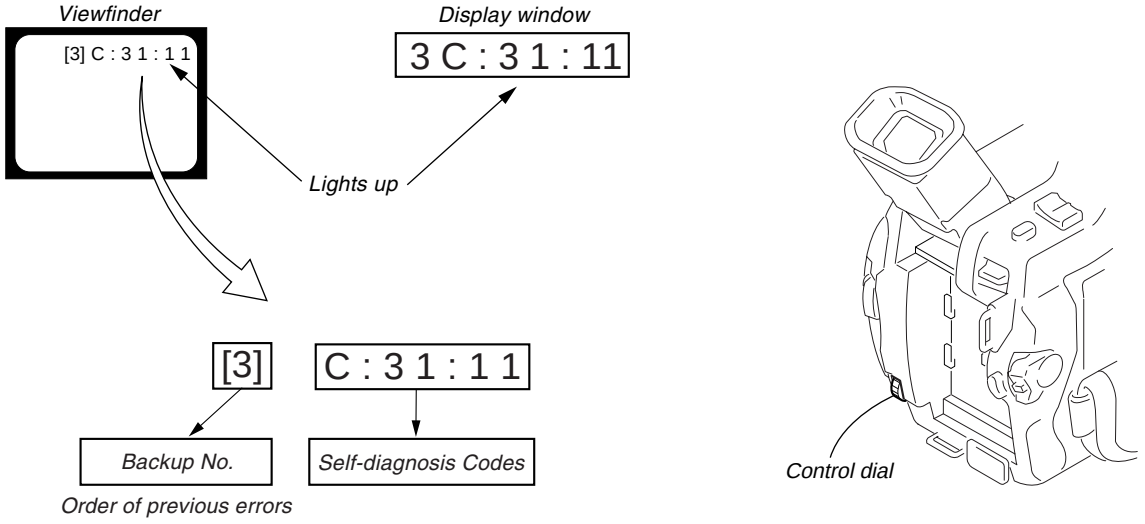

Viewfinder
C : 3 1 : 1 1
Display window
C : 3 1 : 11
Blinks at 3.2Hz
C : 3 1 : 1 1
Repaired by:
Block
Detailed Code
C : Corrected by customer
H : Corrected by dealer
E : Corrected by service engineer
Indicates the appropriate step to be taken.
E.g.
31 ....Reload the tape.
32 ....Turn on power again.
Refer to page 1-3 and 1-4. Self-diagnosis Code Table.
Display window

3. Service Mode Display

The service mode display shows up to six self-diagnosis codes shown in the past.

3-1. Display Method

While pressing the "STOP" key, set the switch from OFF to "VTR or PLAYER", and continue pressing the "STOP" key for 5 seconds continuously. The service mode will be displayed, and the counter will show the backup No. and the 5-character self-diagnosis codes.



3-2. Switching of Backup No.

By rotating the control dial, past self-diagnosis codes will be shown in order. The backup No. in the [] indicates the order in which the problem occurred. (If the number of problems which occurred is less than 6, only the number of problems which occurred will be shown.)

[1] : Occurred first time
[2] : Occurred second time
[3] : Occurred third time
[4] : Occurred fourth time
[5] : Occurred fifth time
[6] : Occurred the last time

3-3. End of Display

Turning OFF the power supply will end the service mode display.

Note: The "self-diagnosis display" data will be kept even if lithium battery (CF-2500 block BT001 of cabinet (R) assembly) is removed.

4. Self-diagnosis Code Table

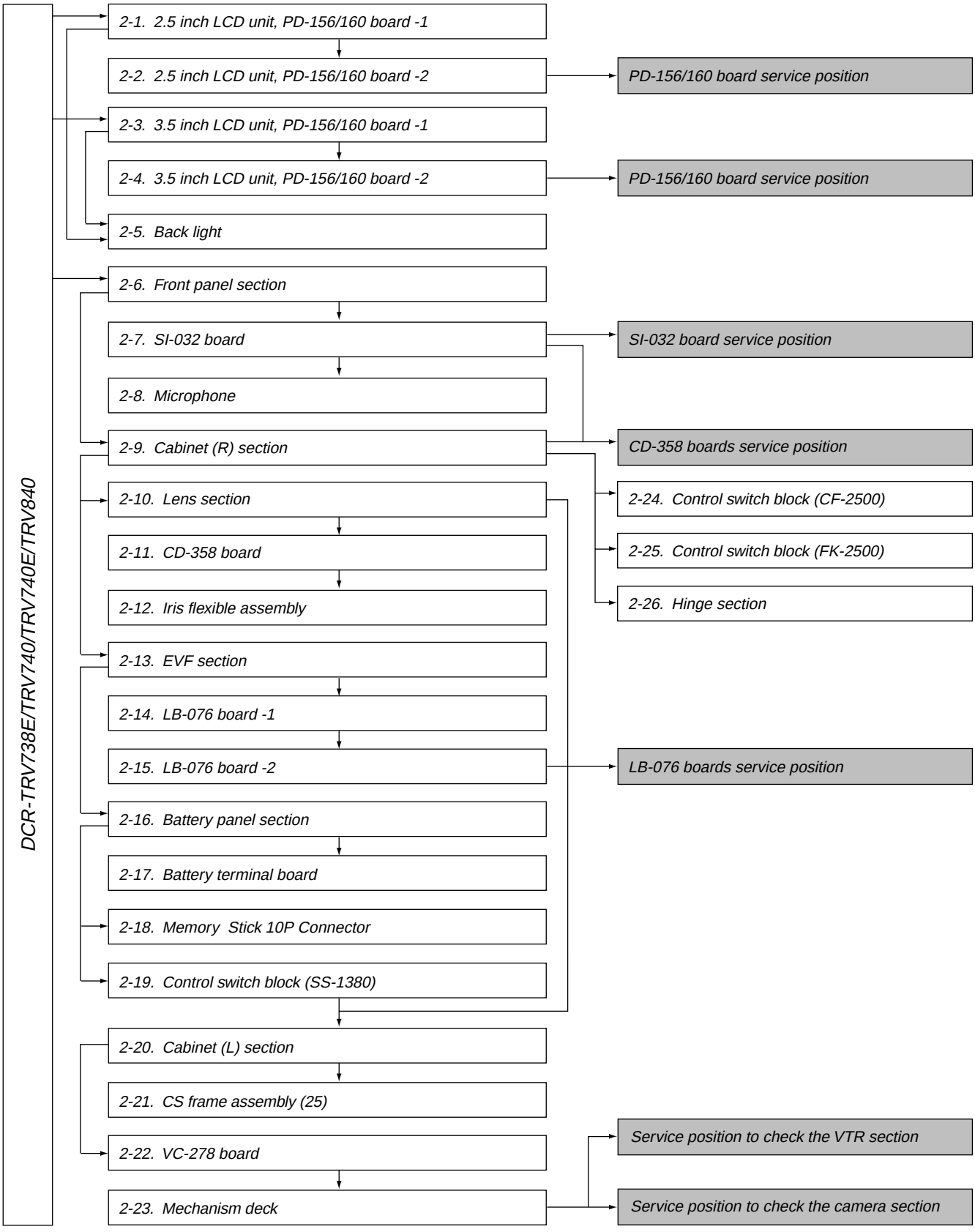
Self-diagnosis Code					Symptom/State	Correction
Repaired by:	Block Function		Detailed Code			
C	0	4	0	0	Non-standard battery is used.	Use the InfoLITHIUM battery.
C	2	1	0	0	Condensation.	Remove the cassette, and insert it again after one hour.
C	2	2	0	0	Video head is dirty.	Clean with the optional cleaning cassette.
C	3	1	1	0	LOAD direction. Loading does not complete within specified time	Load the tape again, and perform operations from the beginning.
C	3	1	1	1	UNLOAD direction. Loading does not complete within specified time	Load the tape again, and perform operations from the beginning.
C	3	1	2	0	T reel side tape slacking when unloading.	Load the tape again, and perform operations from the beginning.
C	3	1	2	1	S reel side tape slacking when unloading.	Load the tape again, and perform operations from the beginning.
C	3	1	2	2	T reel fault.	Load the tape again, and perform operations from the beginning.
C	3	1	2	3	S reel fault.	Load the tape again, and perform operations from the beginning.
C	3	1	3	0	FG fault when starting capstan.	Load the tape again, and perform operations from the beginning.
C	3	1	3	1	FG fault during normal capstan operations.	Load the tape again, and perform operations from the beginning.
C	3	1	4	0	FG fault when starting drum.	Load the tape again, and perform operations from the beginning.
C	3	1	4	1	PG fault when starting drum.	Load the tape again, and perform operations from the beginning.
C	3	1	4	2	FG fault during normal drum operations.	Load the tape again, and perform operations from the beginning.
C	3	1	4	3	PG fault during normal drum operations.	Load the tape again, and perform operations from the beginning.
C	3	1	4	4	Phase fault during normal drum operations.	Load the tape again, and perform operations from the beginning.
C	3	2	1	0	LOAD direction loading motor time-out.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3	2	1	1	UNLOAD direction loading motor time-out.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3	2	2	0	T reel side tape slacking when unloading.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3	2	2	1	S reel side tape slacking when unloading.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3	2	2	2	T reel fault.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3	2	2	3	S reel fault.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3	2	3	0	FG fault when starting capstan.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3	2	3	1	FG fault during normal capstan operations.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3	2	4	0	FG fault when starting drum.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3	2	4	1	PG fault when starting drum.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3	2	4	2	FG fault during normal drum operations.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3	2	4	3	PG fault during normal drum operations.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3	2	4	4	Phase fault during normal drum operations.	Remove the battery or power cable, connect, and perform operations from the beginning.

Self-diagnosis Code					Symptom/State	Correction
Repaired by:	Block Function		Detailed Code			
E	6	1	0	0	Difficult to adjust focus (Cannot initialize focus.)	Inspect the lens block focus reset sensor (Pin ⑫ of CN1551 of VC-278 board) when focusing is performed when the focus ring is rotated in the focus manual mode and the focus motor drive circuit (IC1555 of VC-278 board) when the focusing is not performed.
E	6	1	1	0	Zoom operations fault (Cannot initialize zoom lens.)	Inspect the lens block zoom reset sensor (Pin ⑪ of CN1551 of VC-278 board) when zooming is performed when the zoom switch is operated and the zoom motor drive circuit (IC1555 of VC-278 board) when zooming is not performed.
E	6	2	0	0	Handshake correction function does not work well. (With pitch angular velocity sensor output stopped.)	Inspect pitch angular velocity sensor (SE301 of SE-032 board) peripheral circuits.
E	6	2	0	1	Handshake correction function does not work well. (With yaw angular velocity sensor output stopped.)	Inspect yaw angular velocity sensor (SE302 of SE-032 board) peripheral circuits.

COVER

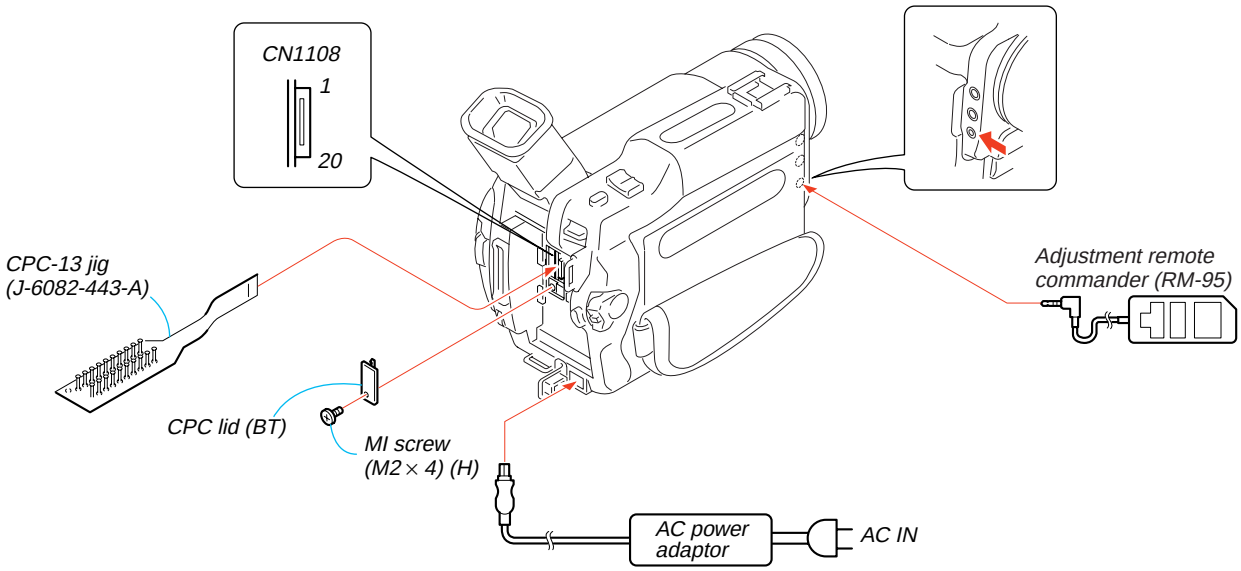
SECTION 2
DISASSEMBLY

The following flow chart shows the disassembly procedure.


DCR-TRV738E/TRV740/TRV740E/TRV840
2-1. 2.5 inch LCD unit, PD-156/160 board -1
2-2. 2.5 inch LCD unit, PD-156/160 board -2
PD-156/160 board service position
2-3. 3.5 inch LCD unit, PD-156/160 board -1
2-4. 3.5 inch LCD unit, PD-156/160 board -2
PD-156/160 board service position
2-5. Back light
2-6. Front panel section
2-7. SI-032 board
SI-032 board service position
2-8. Microphone
2-9. Cabinet (R) section
CD-358 boards service position
2-10. Lens section
2-24. Control switch block (CF-2500)
2-11. CD-358 board
2-25. Control switch block (FK-2500)
2-12. Iris flexible assembly
2-26. Hinge section
2-13. EVF section
2-14. LB-076 board -1
2-15. LB-076 board -2
LB-076 boards service position
2-16. Battery panel section
2-17. Battery terminal board
2-18. Memory Stick 10P Connector
2-19. Control switch block (SS-1380)
2-20. Cabinet (L) section
2-21. CS frame assembly (25)
2-22. VC-278 board
Service position to check the VTR section
2-23. Mechanism deck
Service position to check the camera section

2.5 inch LCD model : TRV738E/TRV740/TRV740E
3.5 inch LCD model : TRV840

[CONNECTION OF EQUIPMENTS]

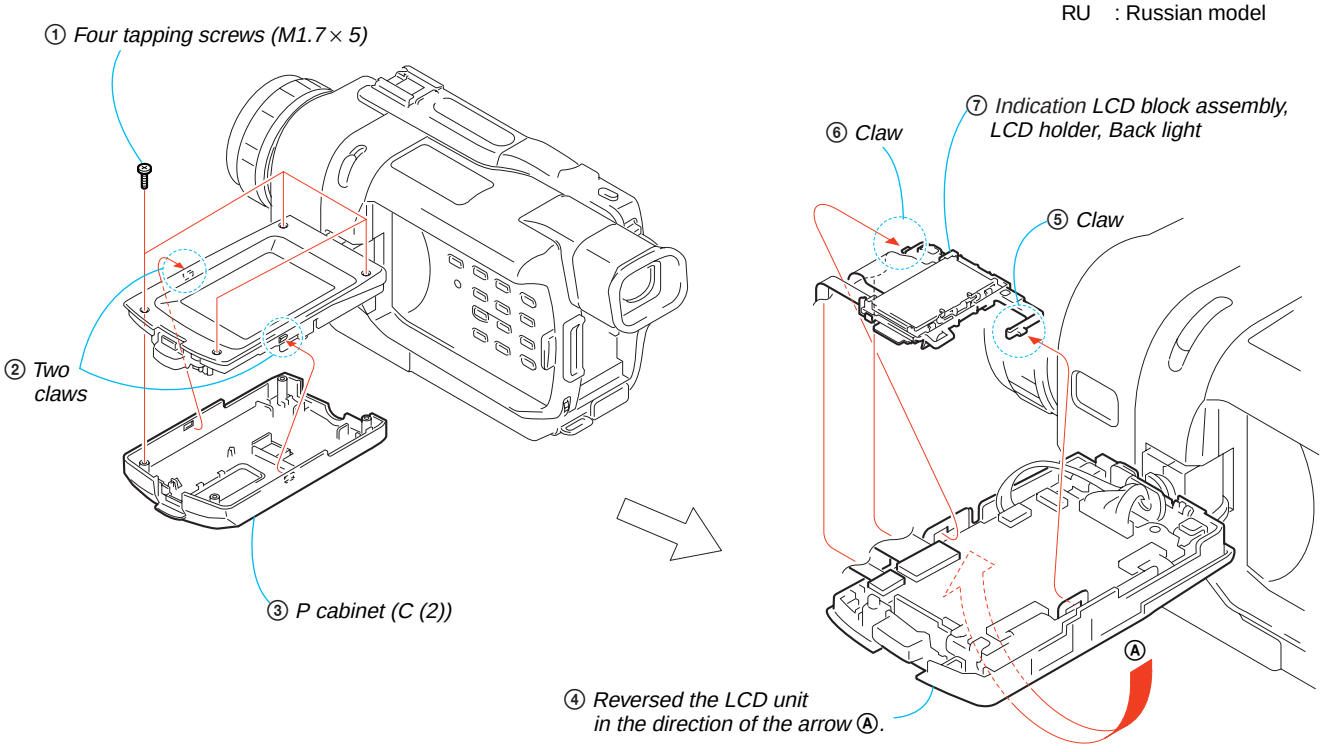


NOTE: Follow the disassembly procedure in the numerical order given.

2-1. 2.5 INCH LCD UNIT, PD-156/160 BOARD -1

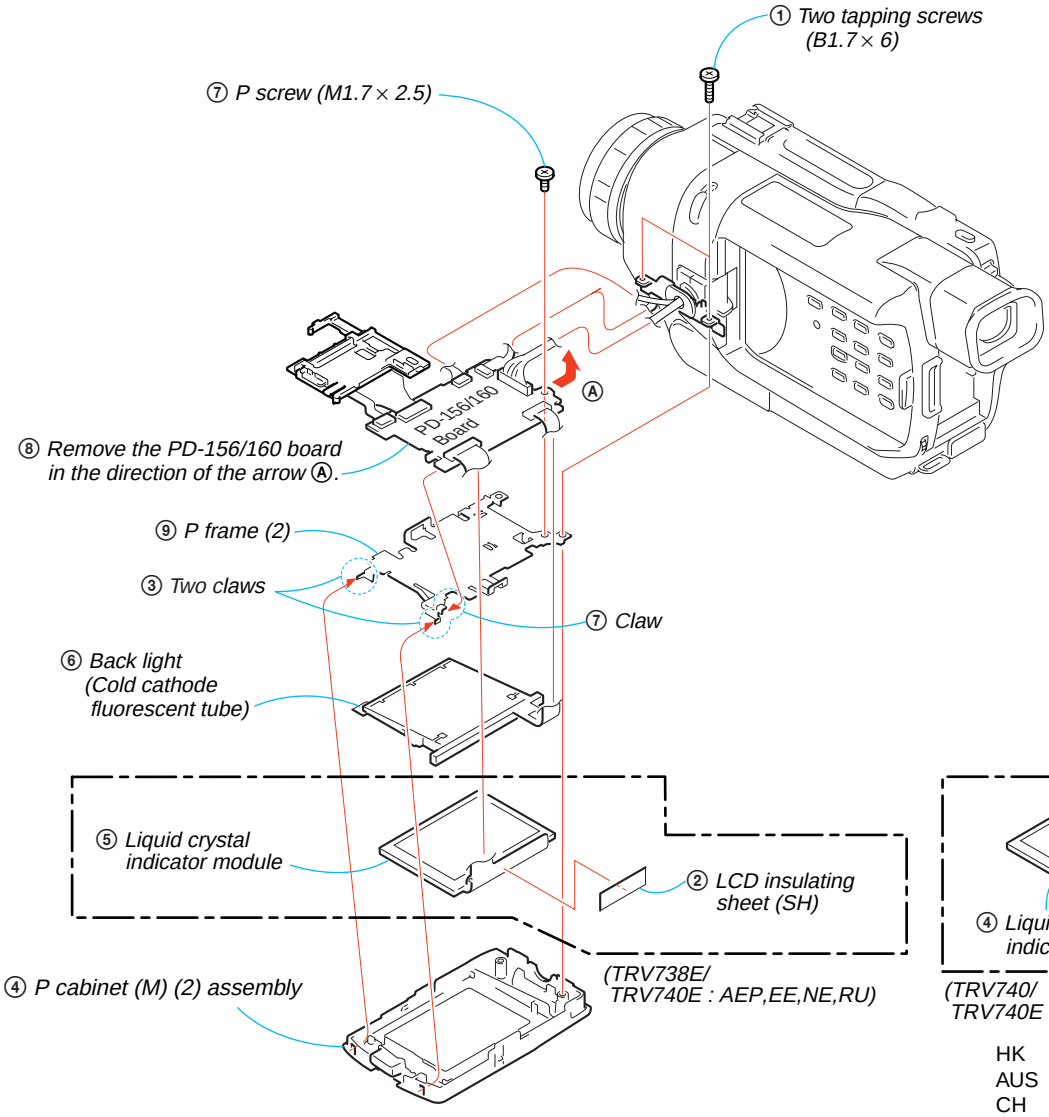
NOTE: PD-156 board : TRV738E/TRV740E (AEP,EE,NE,RU)
PD-160 board : TRV740/TRV740E (E,HK,AUS,CH,JE)
Refer to page 5-32 for 1-5-1. "LCD Type Check" of this manual for the detail.

HK : Hong Kong model
AUS : Australian model
CH : Chinese model
JE : Tourist model
EE : East European model
NE : North European model
RU : Russian model



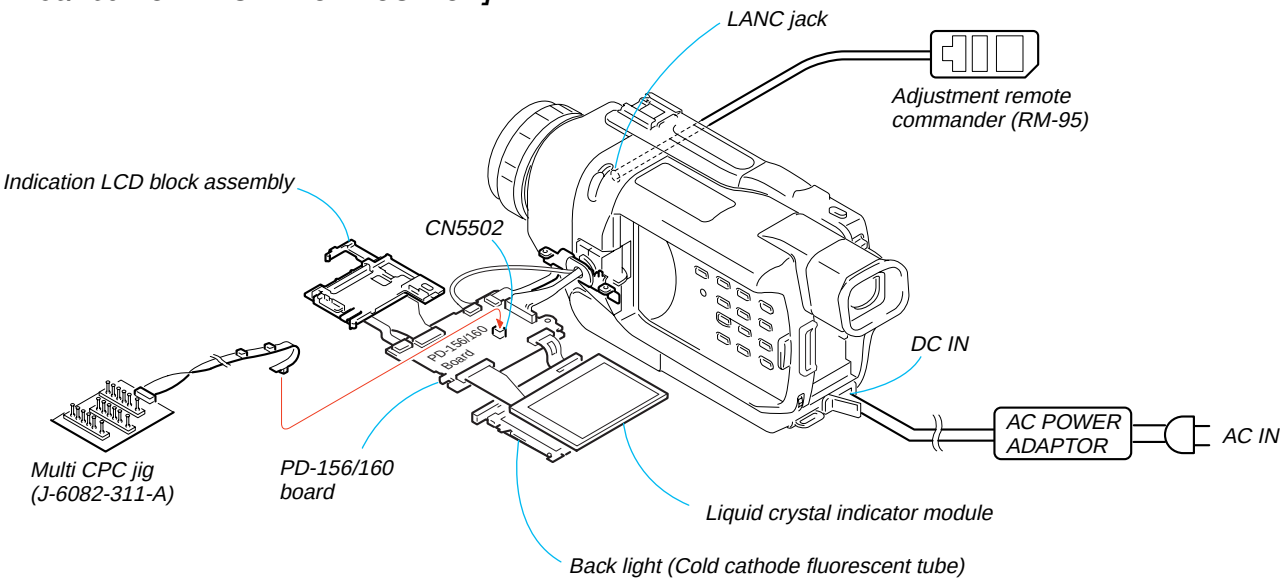
2-2. 2.5 INCH LCD UNIT, PD-156/160 BOARD -2

NOTE: PD-156 board : TRV738E/TRV740E (AEP,EE,NE,RU)
PD-160 board : TRV740/TRV740E (E,HK,AUS,CH,JE)
Refer to page 5-32 for 1-5-1. “LCD Type Check” of this manual for the detail.


① Two tapping screws (B1.7 × 6)
⑦ P screw (M1.7 × 2.5)
PD-156/160 Board
Ⓐ
⑧ Remove the PD-156/160 board in the direction of the arrow Ⓐ.
⑨ P frame (2)
③ Two claws
⑦ Claw
⑥ Back light (Cold cathode fluorescent tube)
⑤ Liquid crystal indicator module
② LCD insulating sheet (SH)
④ P cabinet (M) (2) assembly
(TRV738E/ TRV740E : AEP,EE,NE,RU)
④ Liquid crystal indicator module
(TRV740/ TRV740E : E,HK,AUS,CH,JE)

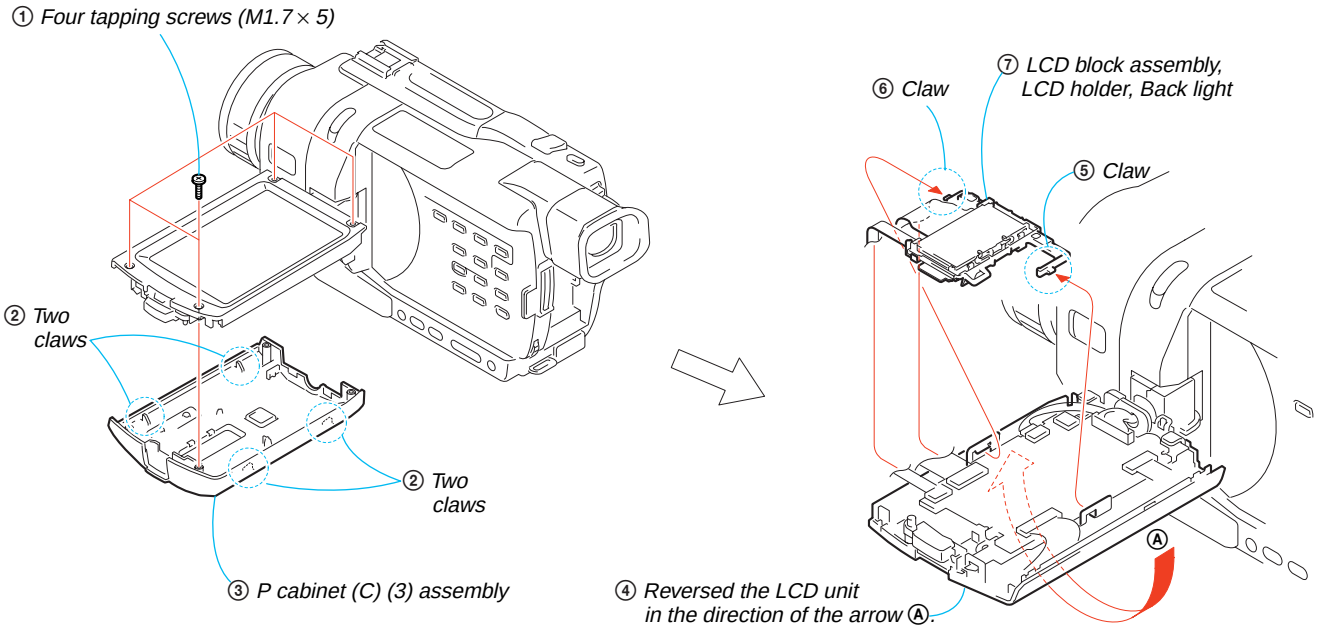
HK : Hong Kong model
AUS : Australian model
CH : Chinese model
JE : Tourist model
EE : East European model
NE : North European model
RU : Russian model

[PD-156/160 BOARD SERVICE POSITION]



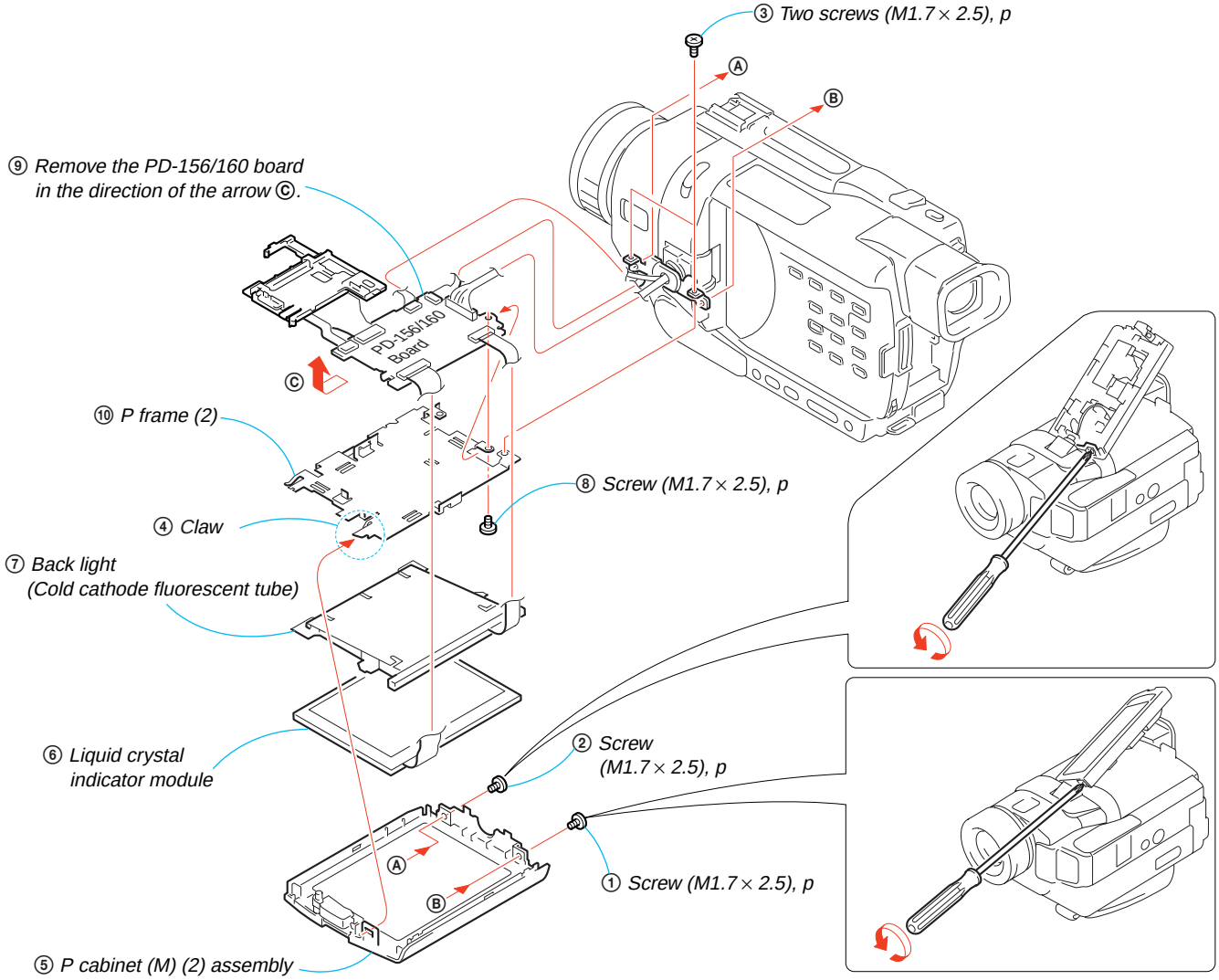
2-3. 3.5 INCH LCD UNIT, PD-156/160 BOARD -1

NOTE: 3.5 inch LCD model is TRV840 only.
Refer to page 5-32 for 1-5-1. “LCD Type Check” of this manual for the detail.

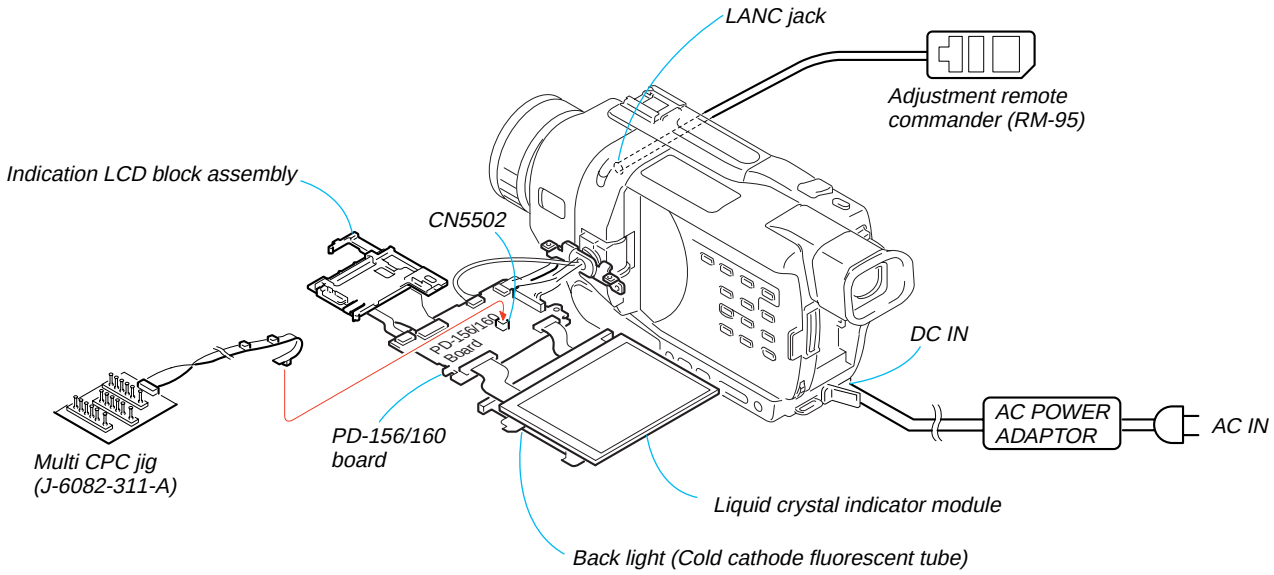

① Four tapping screws (M1.7 × 5)
② Two claws
② Two claws
③ P cabinet (C) (3) assembly
⑥ Claw
⑦ LCD block assembly, LCD holder, Back light
⑤ Claw
④ Reversed the LCD unit in the direction of the arrow Ⓐ.
Ⓐ

2-4. 3.5 INCH LCD UNIT, PD-156/160 BOARD -2

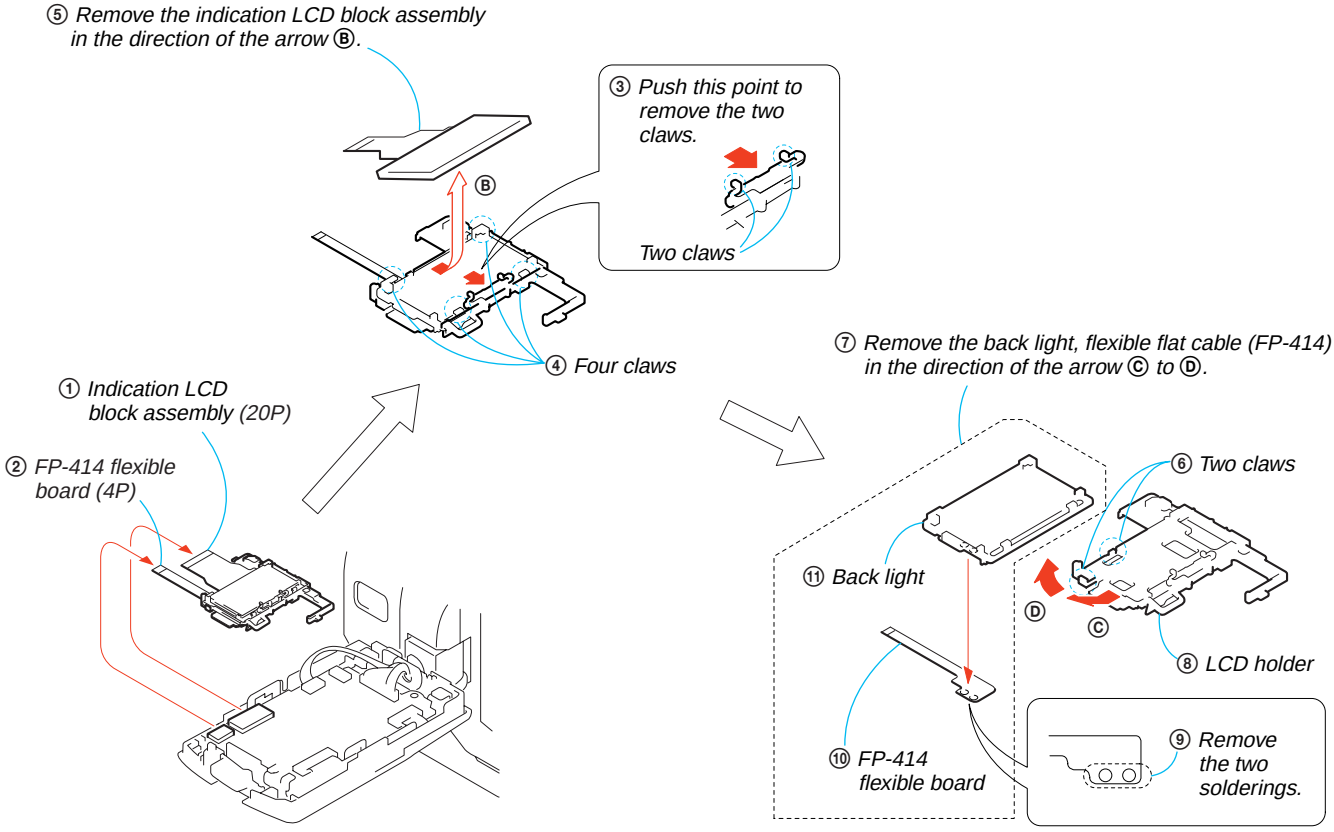
NOTE: 3.5 inch LCD model is TRV840 only.
Refer to page 5-32 for 1-5-1. “LCD Type Check” of this manual for the detail.


③ Two screws (M1.7 × 2.5), p
Ⓐ
Ⓑ
⑨ Remove the PD-156/160 board in the direction of the arrow Ⓒ.
PD-156/160 Board
Ⓒ
⑩ P frame (2)
⑧ Screw (M1.7 × 2.5), p
④ Claw
⑦ Back light (Cold cathode fluorescent tube)
⑥ Liquid crystal indicator module
② Screw (M1.7 × 2.5), p
① Screw (M1.7 × 2.5), p
⑤ P cabinet (M) (2) assembly

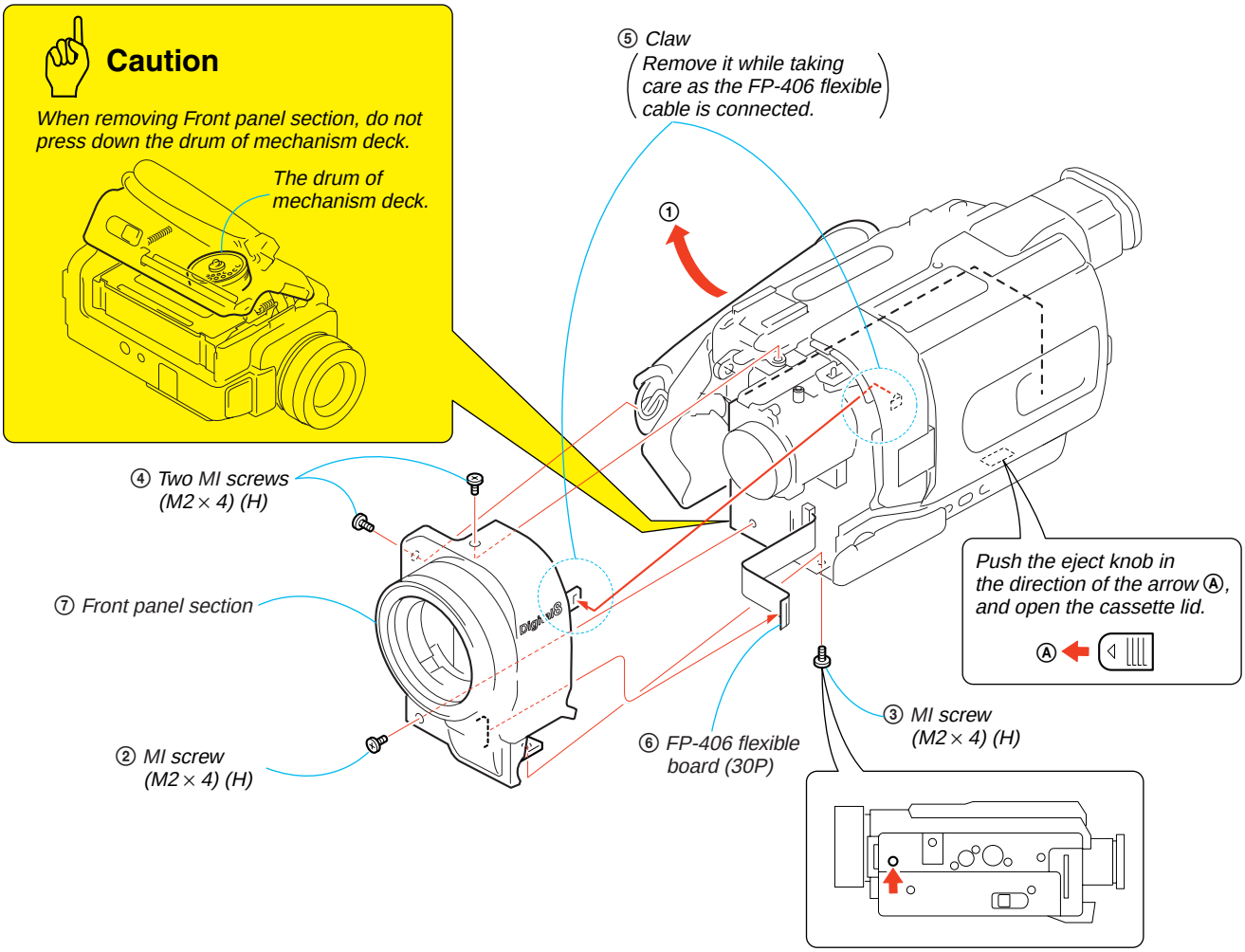
[PD-156/160 BOARD SERVICE POSITION]



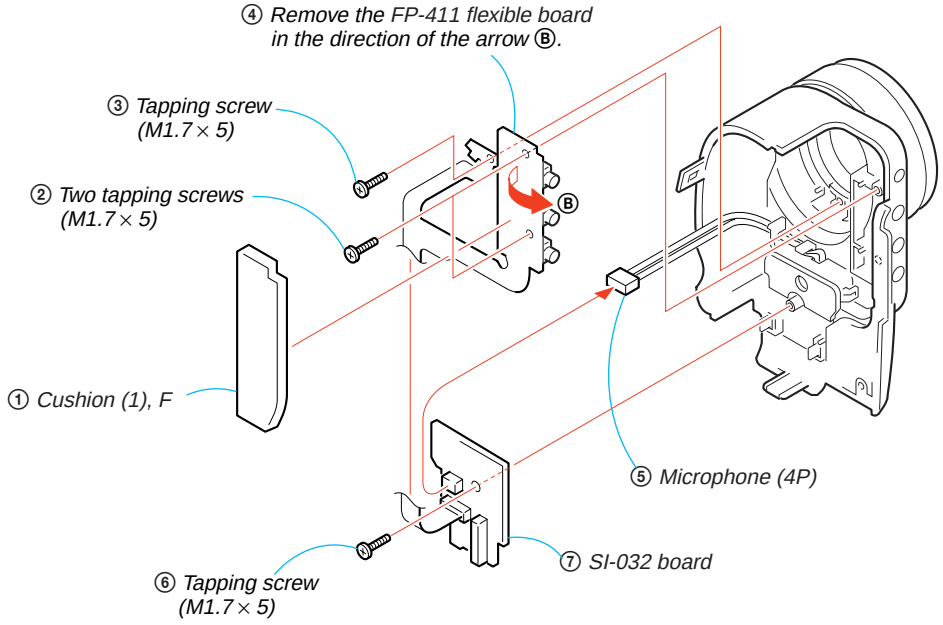
2-5. BACK LIGHT


⑤ Remove the indication LCD block assembly in the direction of the arrow Ⓑ.
③ Push this point to remove the two claws.
Two claws
Ⓑ
④ Four claws
⑦ Remove the back light, flexible flat cable (FP-414) in the direction of the arrow Ⓒ to Ⓓ.
① Indication LCD block assembly (20P)
② FP-414 flexible board (4P)
⑥ Two claws
⑪ Back light
Ⓓ
Ⓒ
⑧ LCD holder
⑩ FP-414 flexible board
⑨ Remove the two solderings.

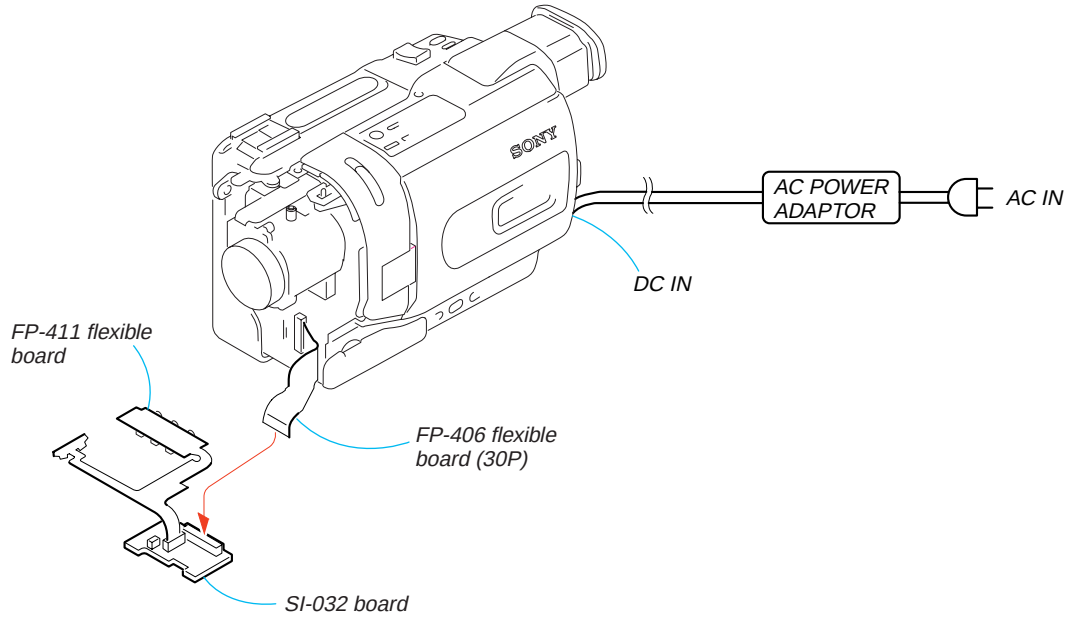
2-6. FRONT PANEL SECTION


Caution
When removing Front panel section, do not press down the drum of mechanism deck.
The drum of mechanism deck.
⑤ Claw
Remove it while taking care as the FP-406 flexible cable is connected.
①
④ Two MI screws (M2 × 4) (H)
⑦ Front panel section
② MI screw (M2 × 4) (H)
⑥ FP-406 flexible board (30P)
③ MI screw (M2 × 4) (H)
Push the eject knob in the direction of the arrow Ⓐ, and open the cassette lid.
Ⓐ

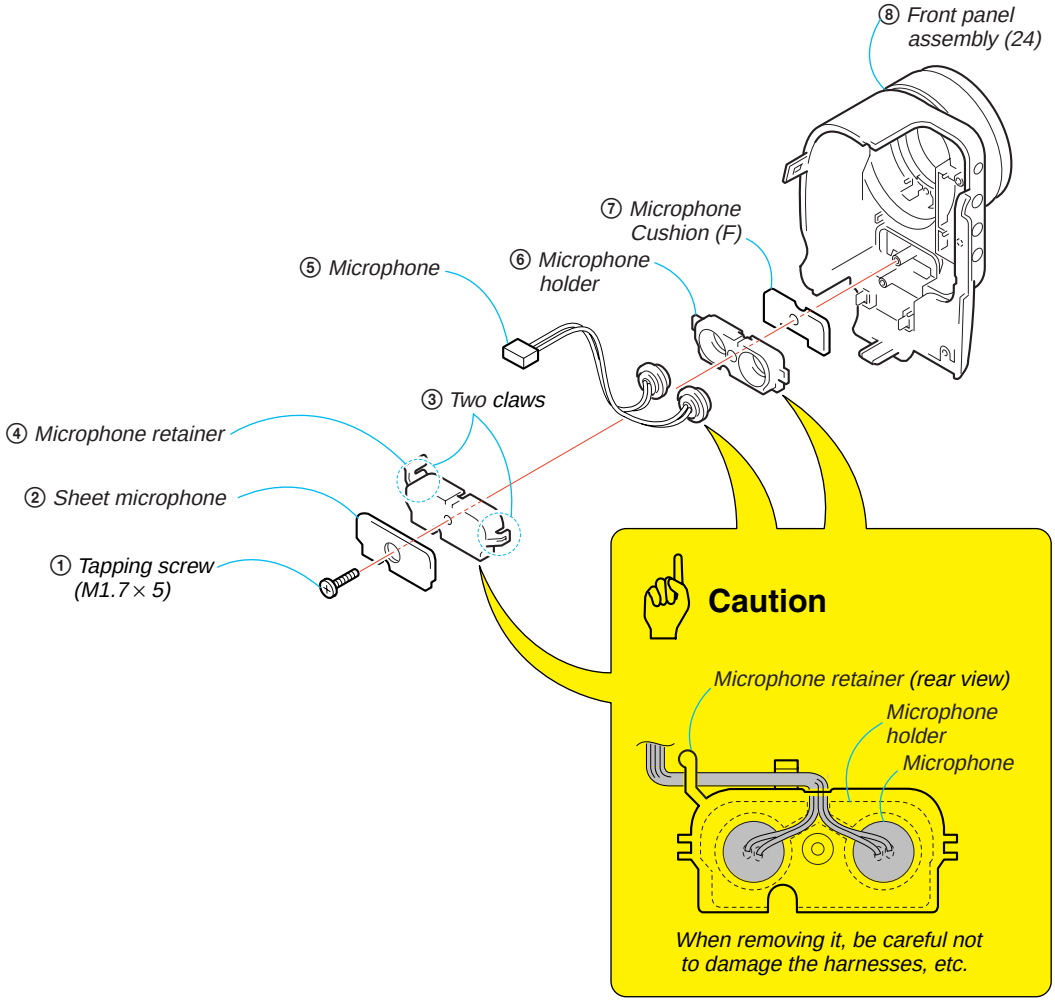
2-7. SI-032 BOARD


④ Remove the FP-411 flexible board in the direction of the arrow Ⓑ.
③ Tapping screw (M1.7 × 5)
② Two tapping screws (M1.7 × 5)
Ⓑ
① Cushion (1), F
⑤ Microphone (4P)
⑦ SI-032 board
⑥ Tapping screw (M1.7 × 5)

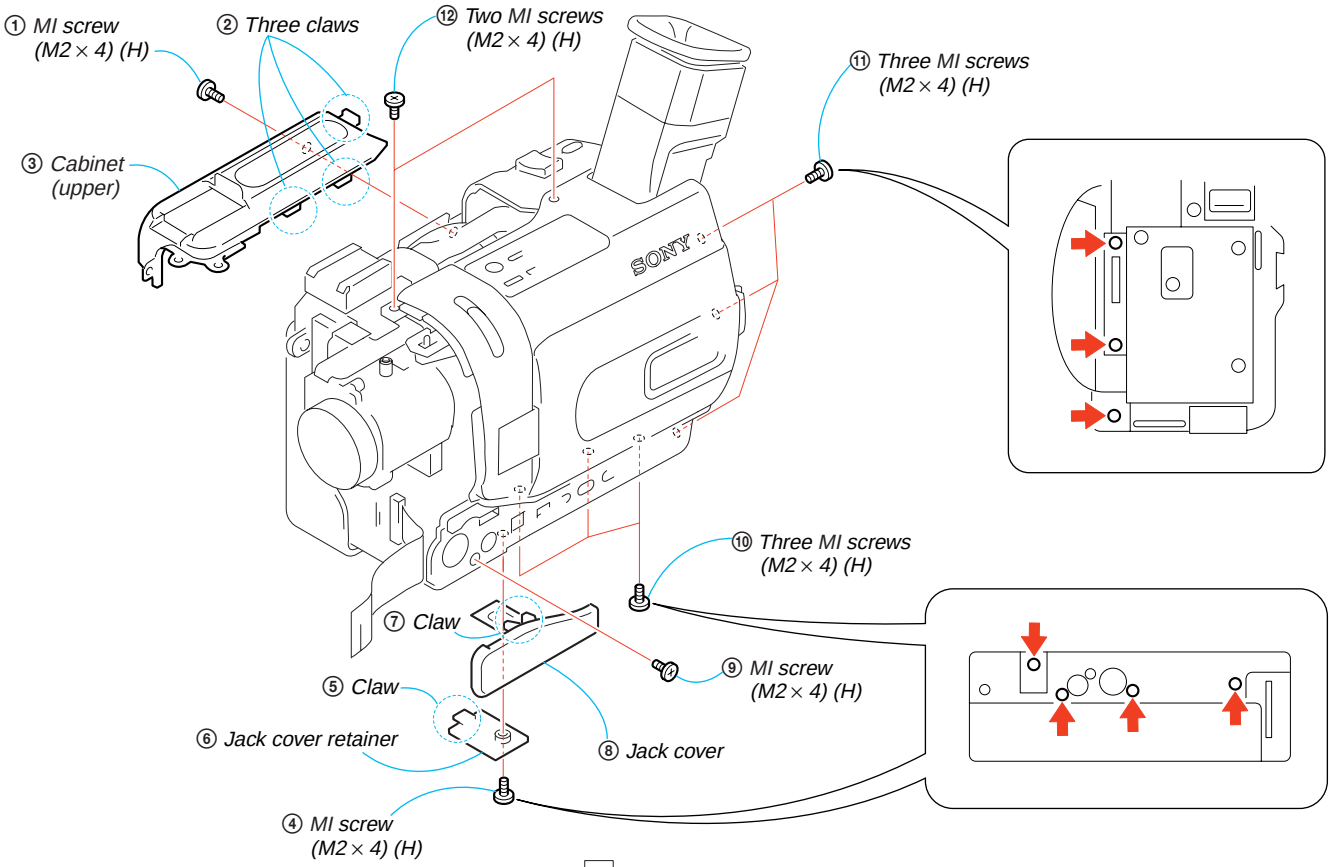
[SI-032 BOARD SERVICE POSITION]

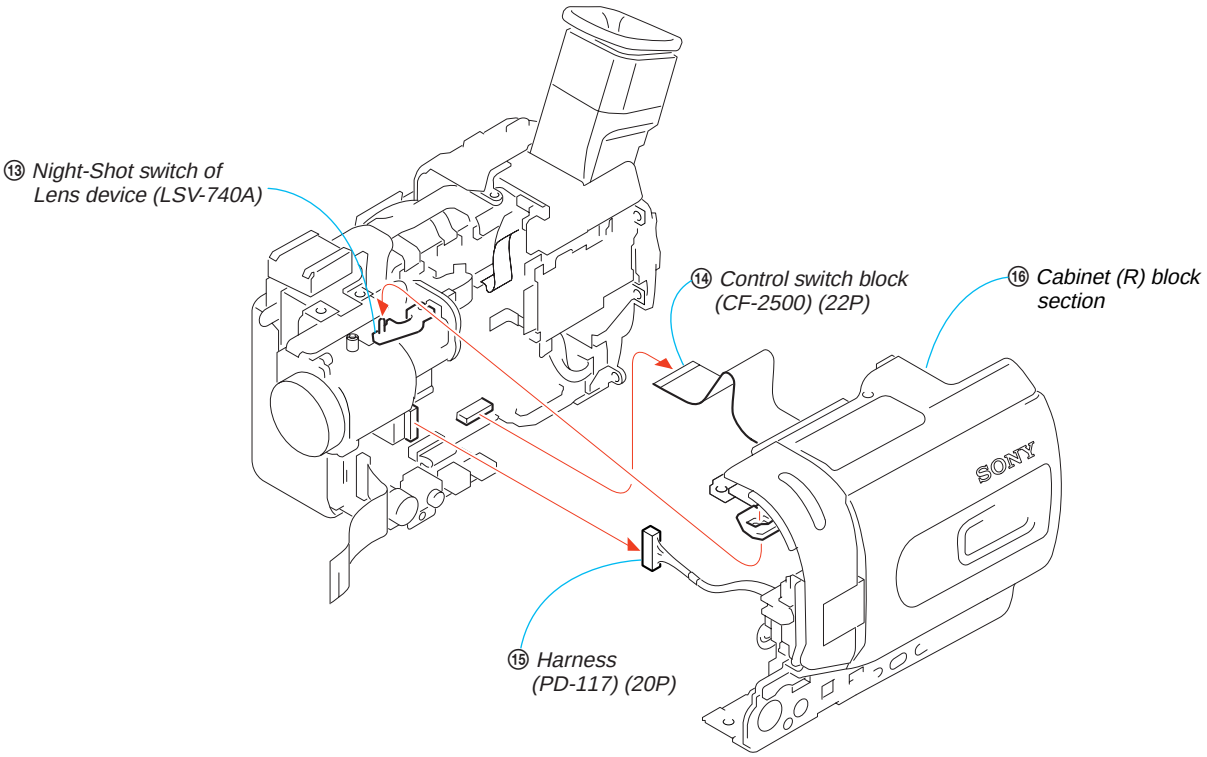


2-8. MICROPHONE

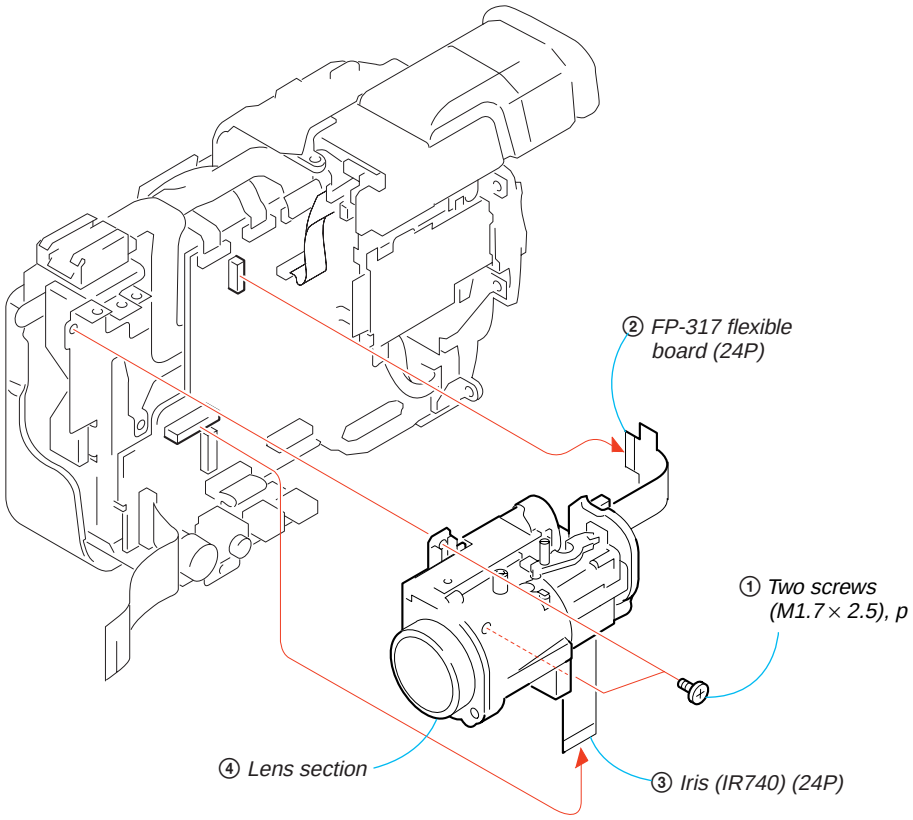


2-9. CABINET (R) SECTION

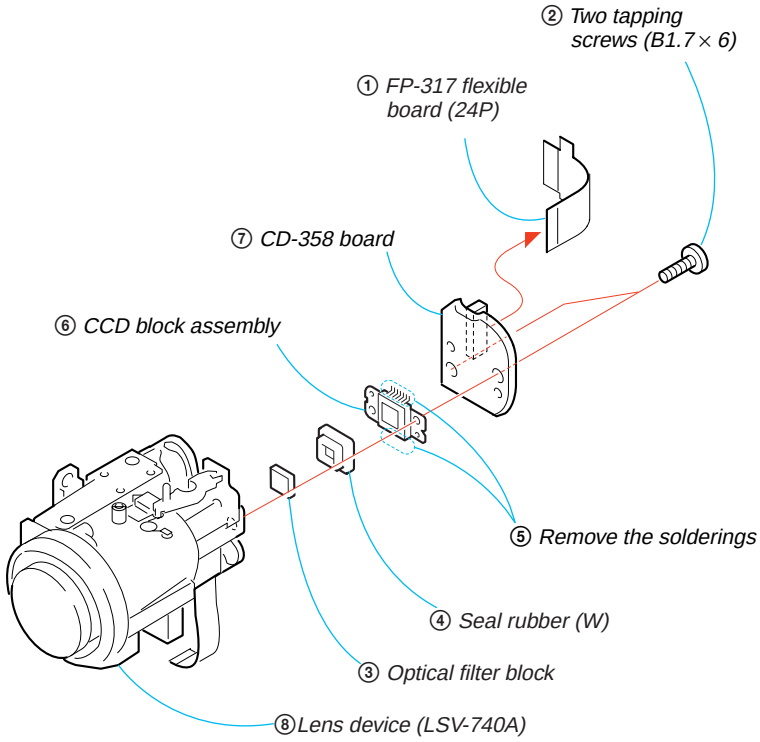

① MI screw (M2 × 4) (H)
② Three claws
⑫ Two MI screws (M2 × 4) (H)
⑪ Three MI screws (M2 × 4) (H)
③ Cabinet (upper)
⑩ Three MI screws (M2 × 4) (H)
⑦ Claw
⑨ MI screw (M2 × 4) (H)
⑤ Claw
⑥ Jack cover retainer
⑧ Jack cover
④ MI screw (M2 × 4) (H)


⑬ Night-Shot switch of Lens device (LSV-740A)
⑭ Control switch block (CF-2500) (22P)
⑯ Cabinet (R) block section
⑮ Harness (PD-117) (20P)

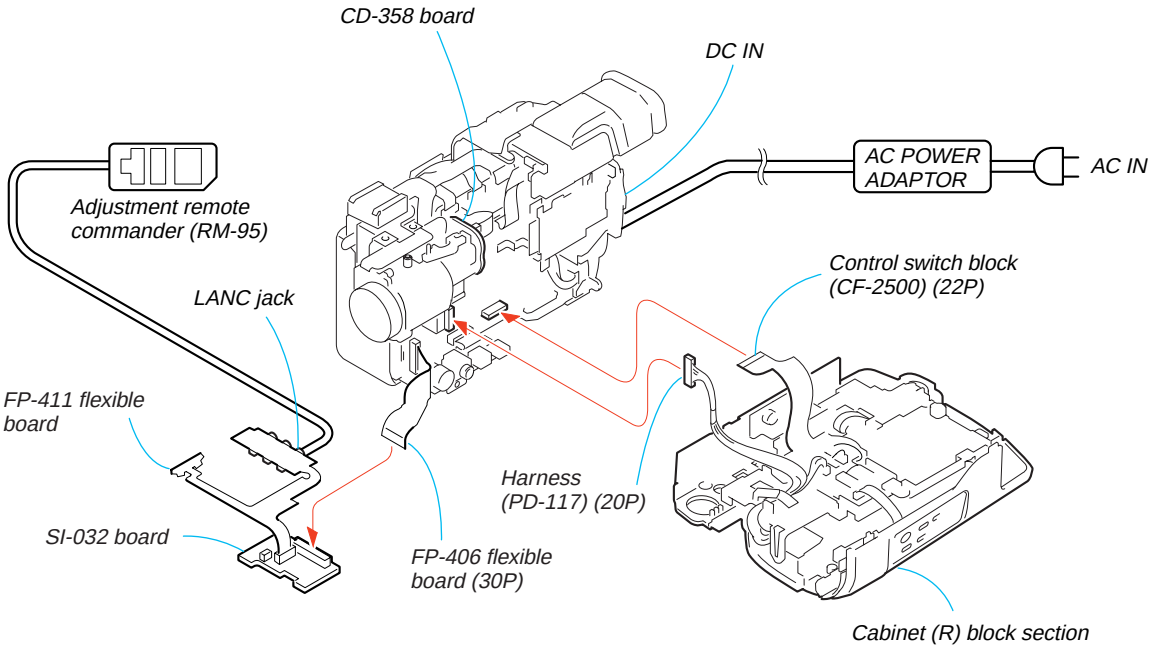
2-10. LENS SECTION



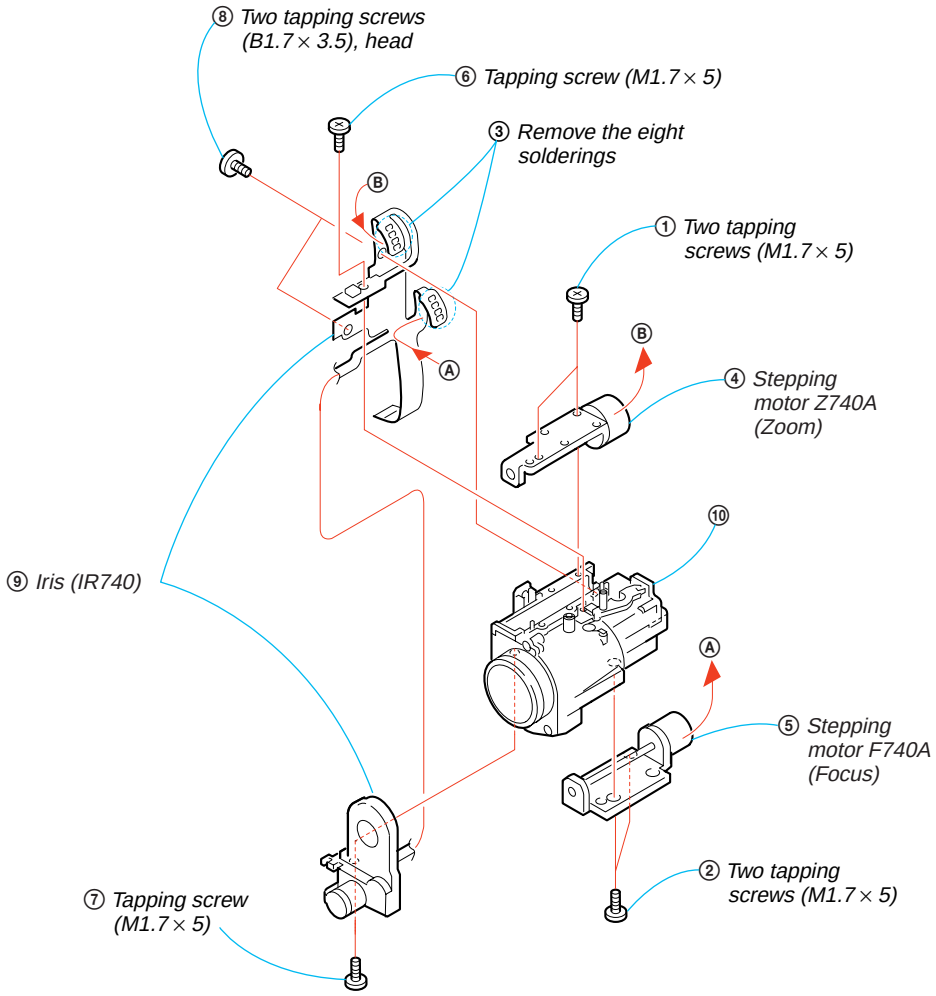
2-11. CD-358 BOARD


② Two tapping screws (B1.7× 6)
① FP-317 flexible board (24P)
⑦ CD-358 board
⑥ CCD block assembly
⑤ Remove the solderings
④ Seal rubber (W)
③ Optical filter block
⑧ Lens device (LSV-740A)

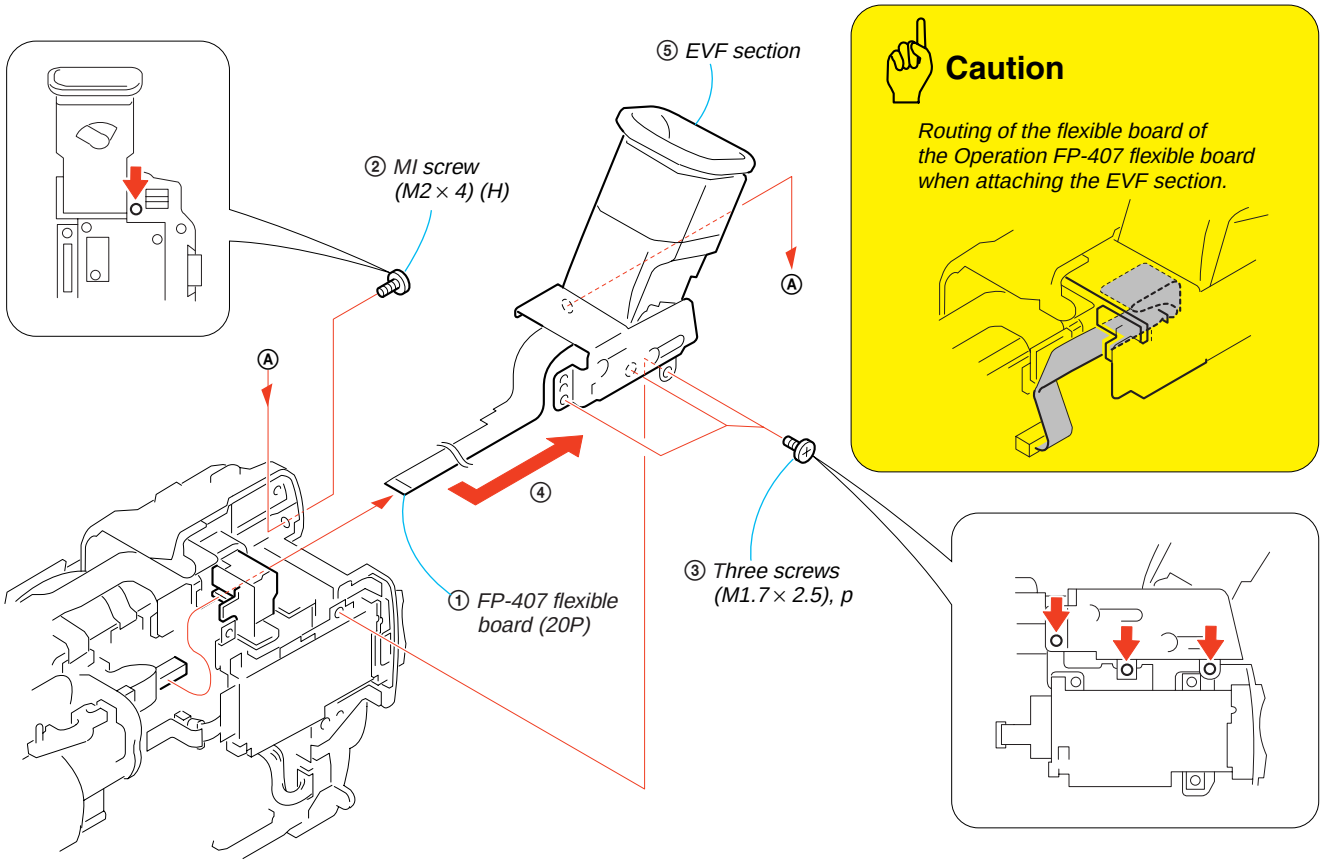
[CD-358 BOARD SERVICE POSITION]



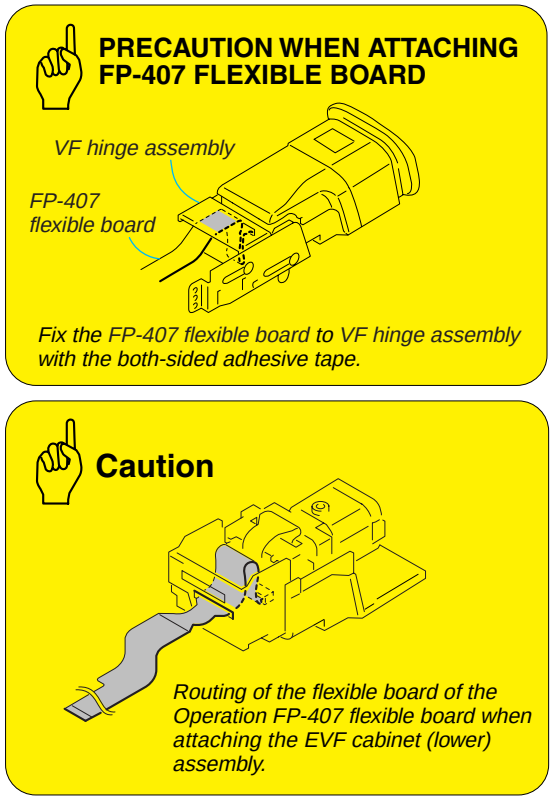
2-12. IRIS FLEXIBLE ASSEMBLY

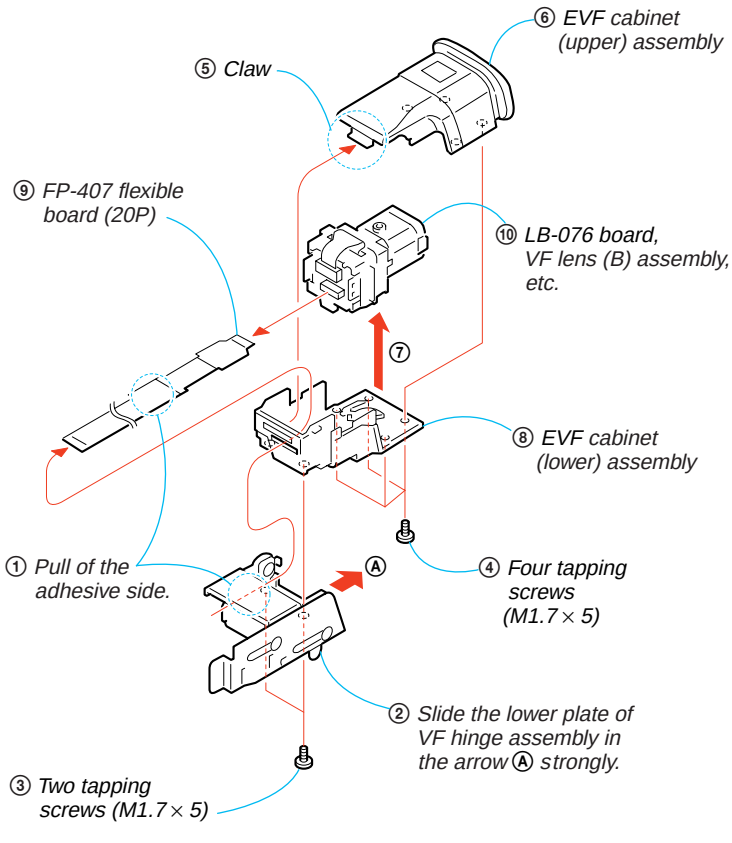

⑧ Two tapping screws (B1.7 × 3.5), head
⑥ Tapping screw (M1.7 × 5)
③ Remove the eight solderings
Ⓑ
① Two tapping screws (M1.7 × 5)
Ⓑ
Ⓐ
④ Stepping motor Z740A (Zoom)
⑩
⑨ Iris (IR740)
Ⓐ
⑤ Stepping motor F740A (Focus)
② Two tapping screws (M1.7 × 5)
⑦ Tapping screw (M1.7 × 5)

2-13. EVF SECTION

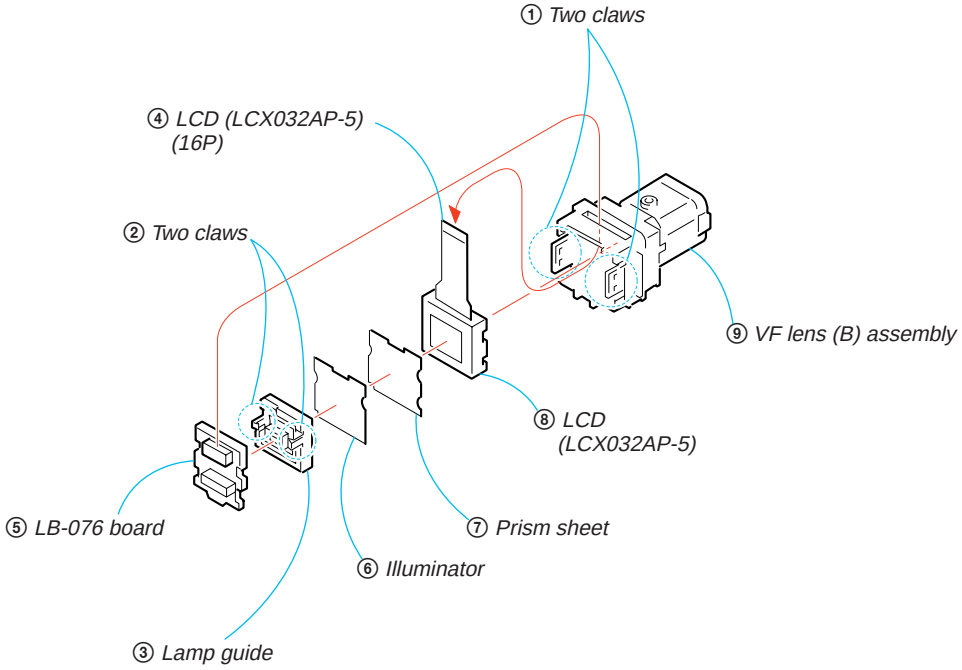

⑤ EVF section
② MI screw (M2 × 4) (H)
Ⓐ
Ⓐ
④
① FP-407 flexible board (20P)
③ Three screws (M1.7 × 2.5), p
Caution
Routing of the flexible board of the Operation FP-407 flexible board when attaching the EVF section.

2-14. LB-076 BOARD -1

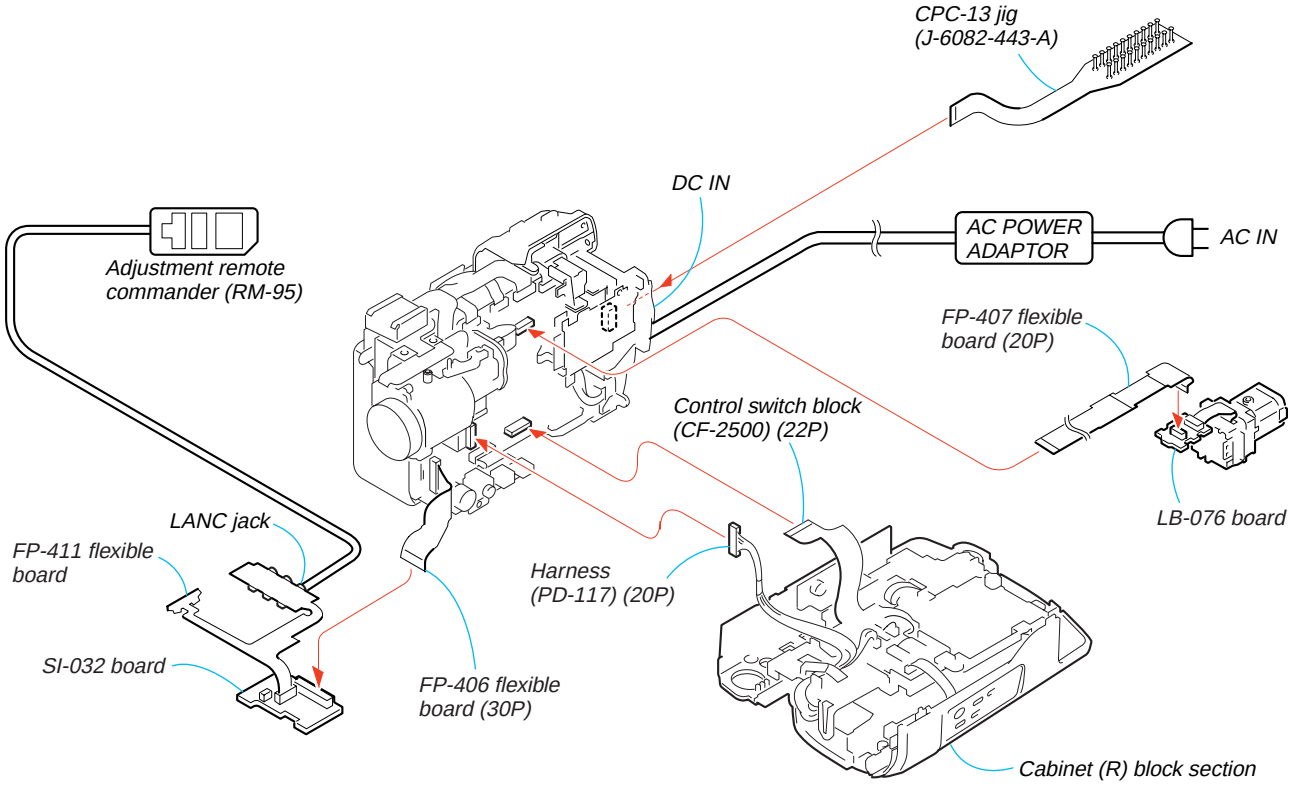

PRECAUTION WHEN ATTACHING FP-407 FLEXIBLE BOARD
VF hinge assembly
FP-407 flexible board
Fix the FP-407 flexible board to VF hinge assembly with the both-sided adhesive tape.
Caution
Routing of the flexible board of the Operation FP-407 flexible board when attaching the EVF cabinet (lower) assembly.


⑥ EVF cabinet (upper) assembly
⑤ Claw
⑨ FP-407 flexible board (20P)
⑩ LB-076 board, VF lens (B) assembly, etc.
⑦
⑧ EVF cabinet (lower) assembly
① Pull of the adhesive side.
Ⓐ
④ Four tapping screws (M1.7 × 5)
② Slide the lower plate of VF hinge assembly in the arrow Ⓐ strongly.
③ Two tapping screws (M1.7 × 5)

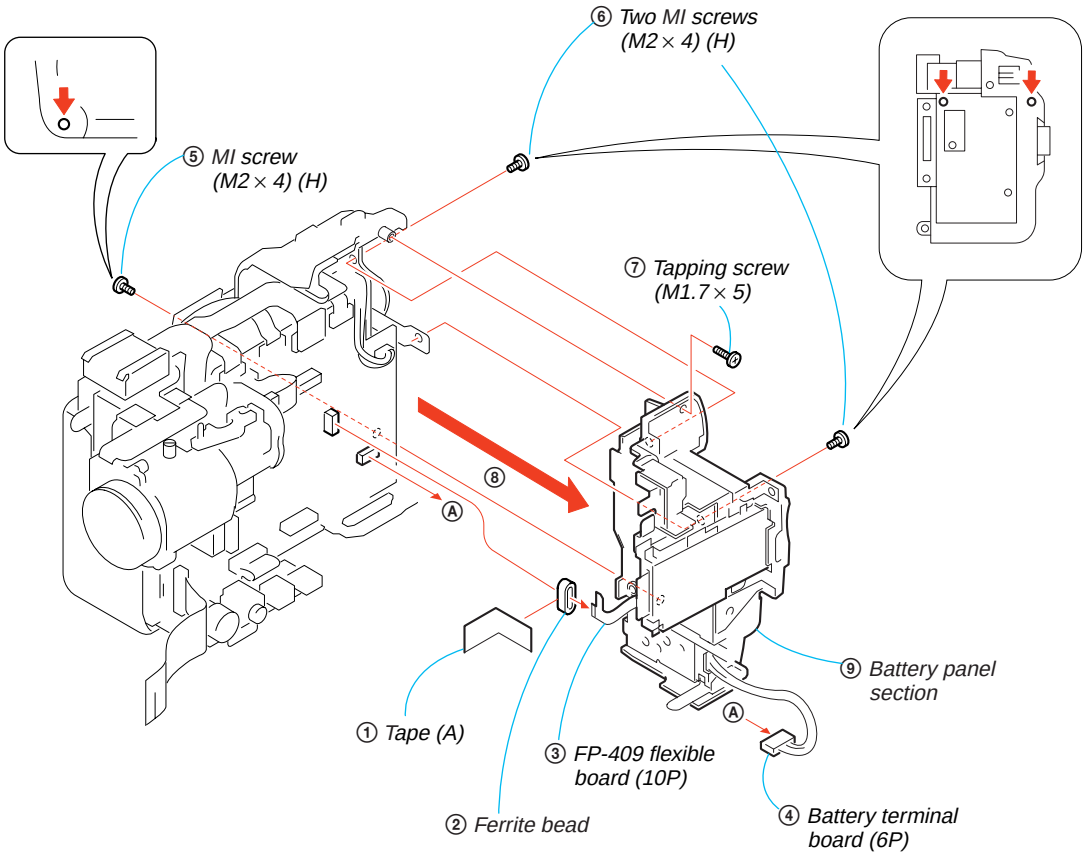
2-15. LB-076 BOARD -2



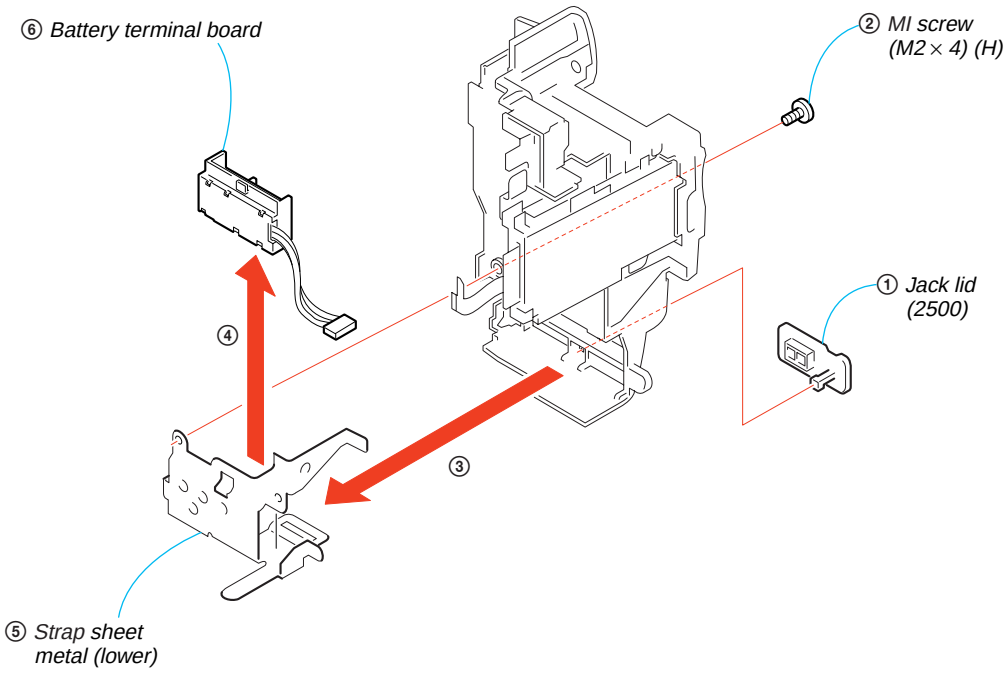
[LB-076 BOARD SERVICE POSITION]



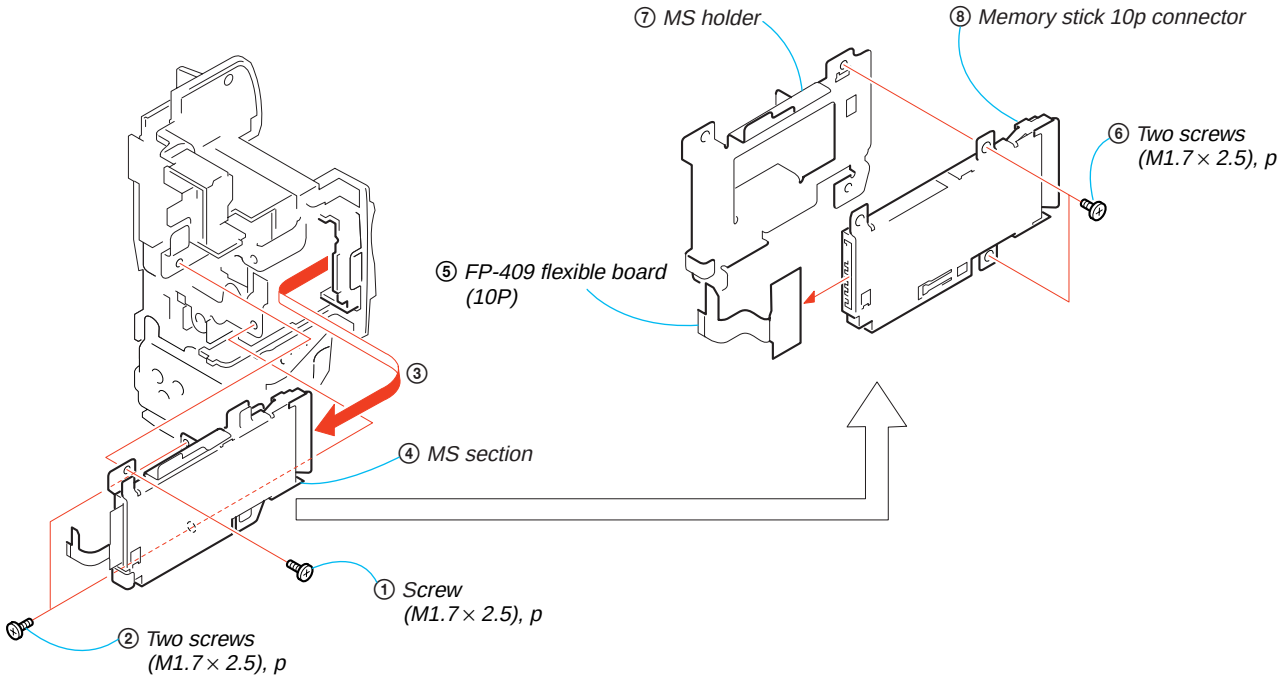
2-16. BATTERY PANEL SECTION


⑥ Two MI screws (M2 × 4) (H)
⑤ MI screw (M2 × 4) (H)
⑦ Tapping screw (M1.7 × 5)
⑧
Ⓐ
⑨ Battery panel section
① Tape (A)
③ FP-409 flexible board (10P)
② Ferrite bead
④ Battery terminal board (6P)

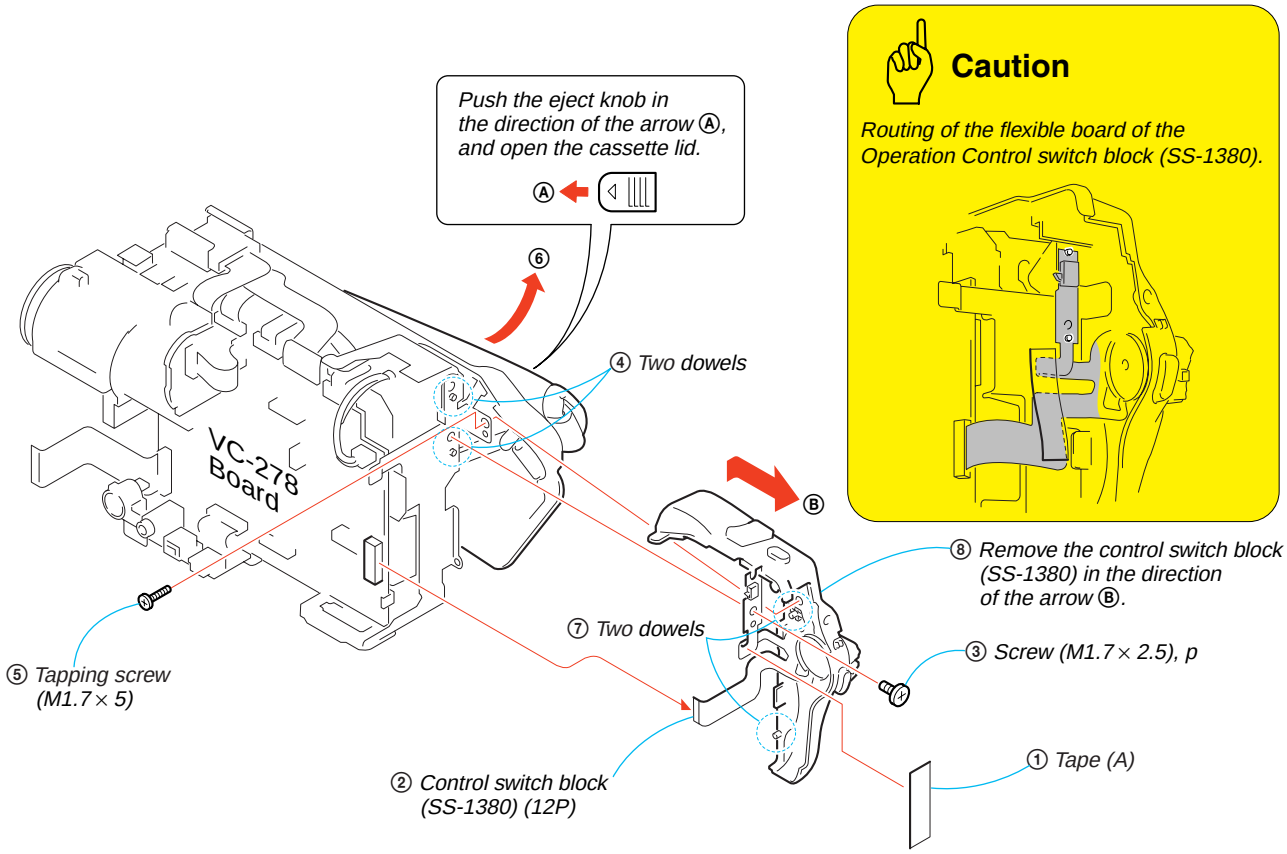
2-17. BATTERY TERMINAL BOARD



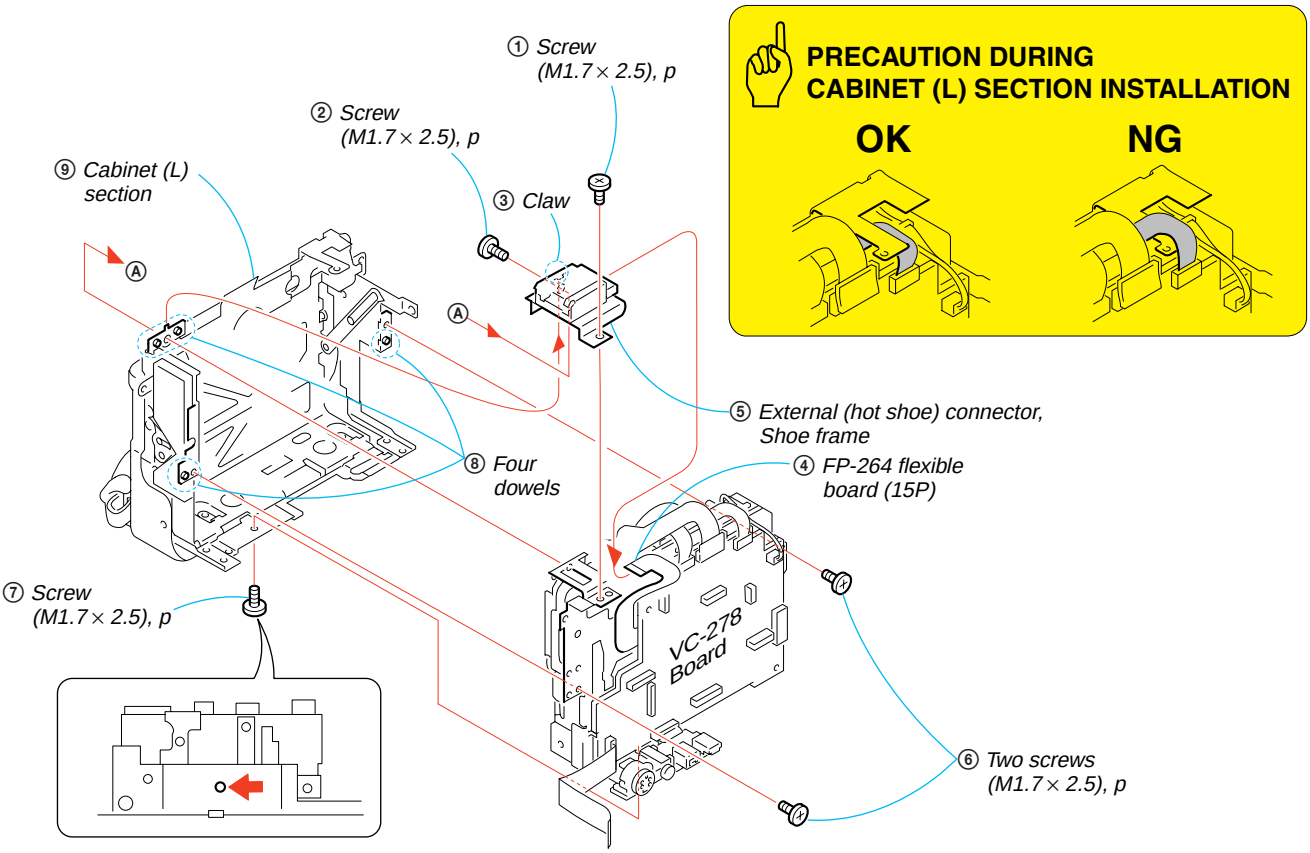
2-18. MEMORY STICK 10P CONNECTOR


⑦ MS holder
⑧ Memory stick 10p connector
⑥ Two screws (M1.7× 2.5), p
⑤ FP-409 flexible board (10P)
③
④ MS section
① Screw (M1.7× 2.5), p
② Two screws (M1.7× 2.5), p

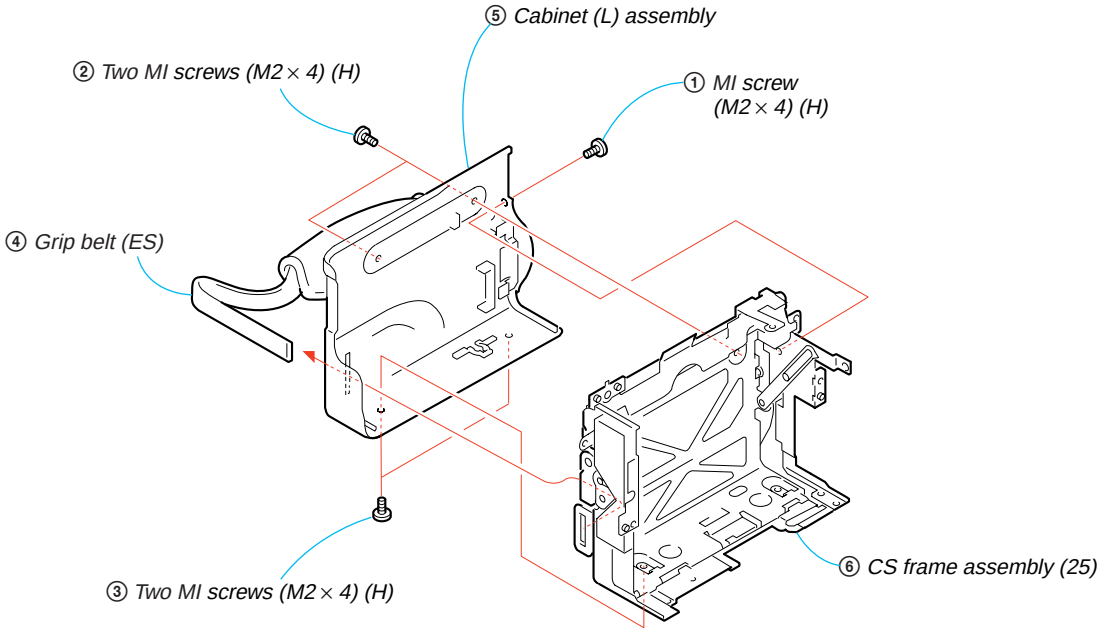
2-19. CONTROL SWITCH BLOCK (SS-1380)


Push the eject knob in the direction of the arrow Ⓐ, and open the cassette lid.
Ⓐ
⑥
④ Two dowels
VC-278 Board
Ⓑ
⑧ Remove the control switch block (SS-1380) in the direction of the arrow Ⓑ.
⑦ Two dowels
③ Screw (M1.7× 2.5), p
⑤ Tapping screw (M1.7× 5)
① Tape (A)
② Control switch block (SS-1380) (12P)
Caution
Routing of the flexible board of the Operation Control switch block (SS-1380).

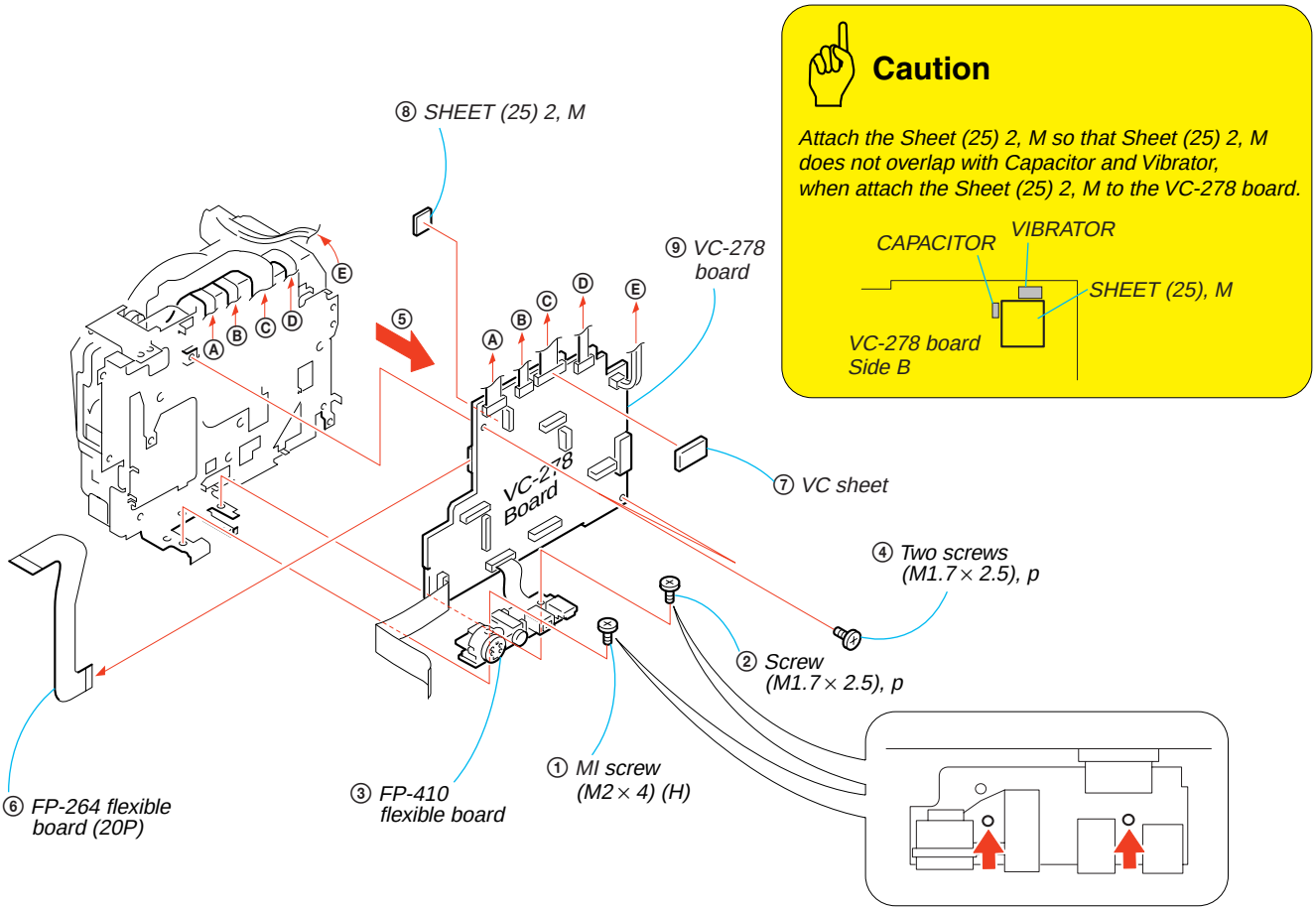
2-20. CABINET (L) SECTION



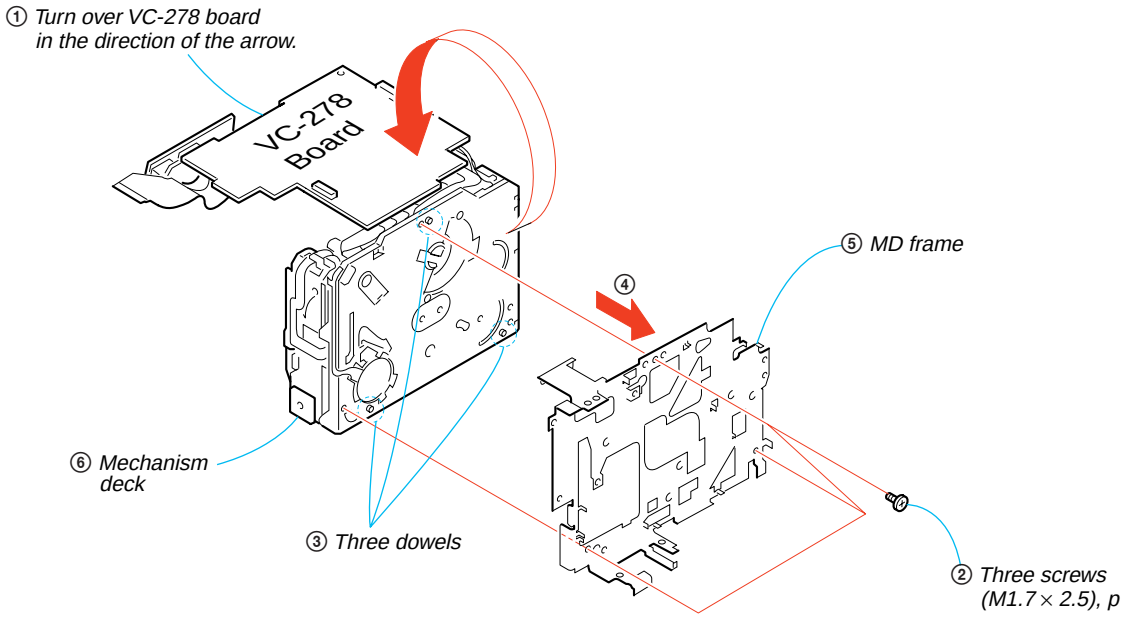
2-21. CS FRAME ASSEMBLY (25)



2-22. VC-278 BOARD


⑧ SHEET (25) 2, M
⑨ VC-278 board
⑦ VC sheet
④ Two screws (M1.7 × 2.5), p
② Screw (M1.7 × 2.5), p
① MI screw (M2 × 4) (H)
③ FP-410 flexible board
⑥ FP-264 flexible board (20P)
VC-278 Board
Caution
Attach the Sheet (25) 2, M so that Sheet (25) 2, M does not overlap with Capacitor and Vibrator, when attach the Sheet (25) 2, M to the VC-278 board.
CAPACITOR
VIBRATOR
SHEET (25), M
VC-278 board Side B

2-23. MECHANISM DECK


① Turn over VC-278 board in the direction of the arrow.
VC-278 Board
⑤ MD frame
⑥ Mechanism deck
③ Three dowels
② Three screws (M1.7 × 2.5), p

[SERVICE POSITION TO CHECK THE VTR SECTION]

Cnnection to Check the VTR Section

To check the VTR section, set the VTR to the “Forced VTR power ON” mode.
Operate the VTR functions using the adjustment remote commander (with the HOLD switch set in the OFF position).

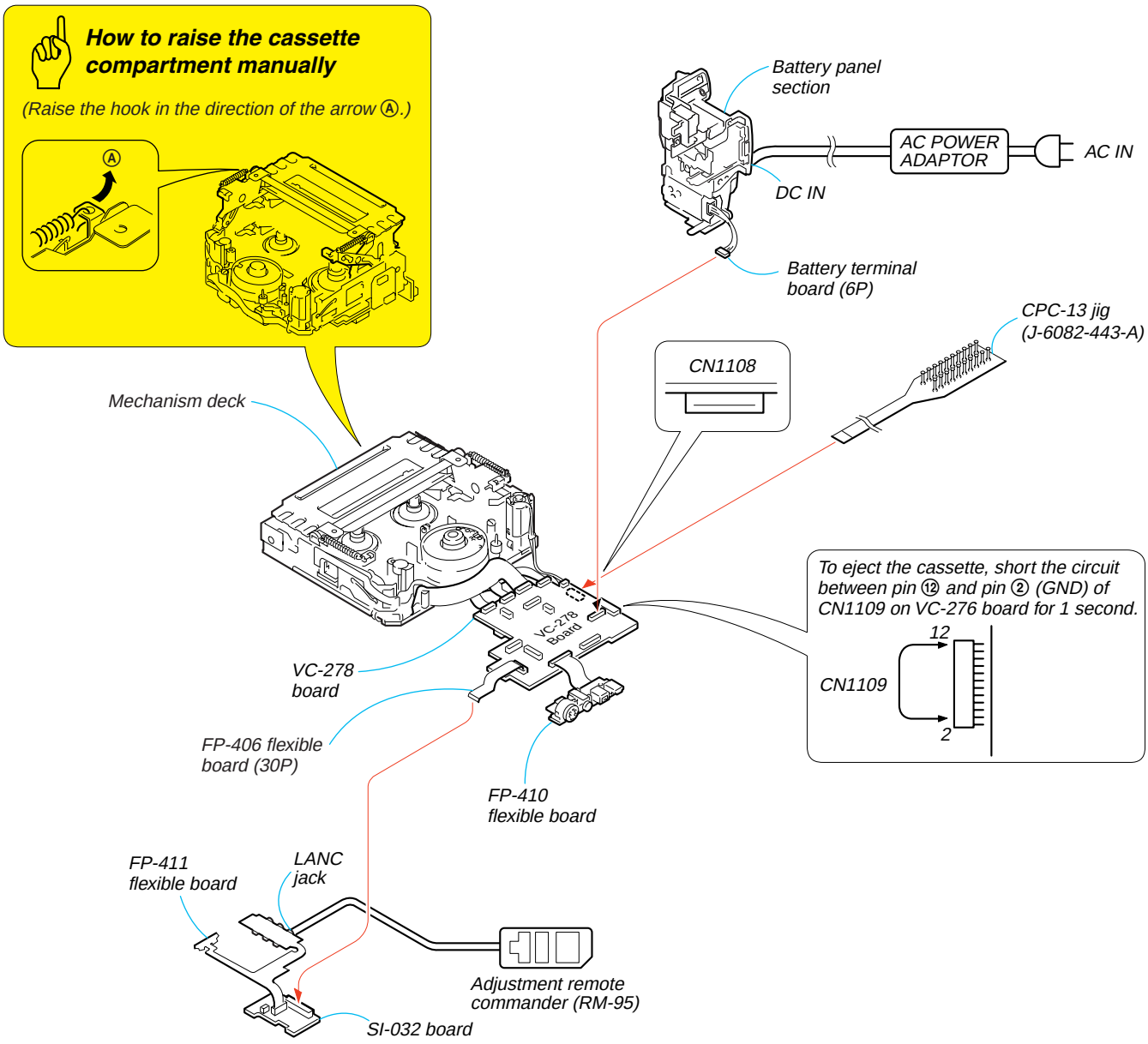
Setting the “Forced VTR Power ON” mode

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 0, address: 10, and set data: 00.
3) Select page: D, address: 10, set data: 02 and press the PAUSE button of the adjustment remote commander.

Exiting the “Forced VTR Power ON” mode

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 0, address: 10, and set data: 00.
3) Select page: D, address: 10, set data: 00, and press the PAUSE button of the adjustment remote commander.
4) Select page: 0, address: 01, and set data: 00.

Note : If the machine malfunctions (the operating mode changes by itself), connect the Cabinet (R) section.



[SERVICE POSITION TO CHECK THE CAMERA SECTION]

Connection to Check the Camera Section

To check the camera section, set the camera to the “Forced camera power ON” mode.
When you want to operate to focus, use the controls on the remote commander (with the HOLD switch off).

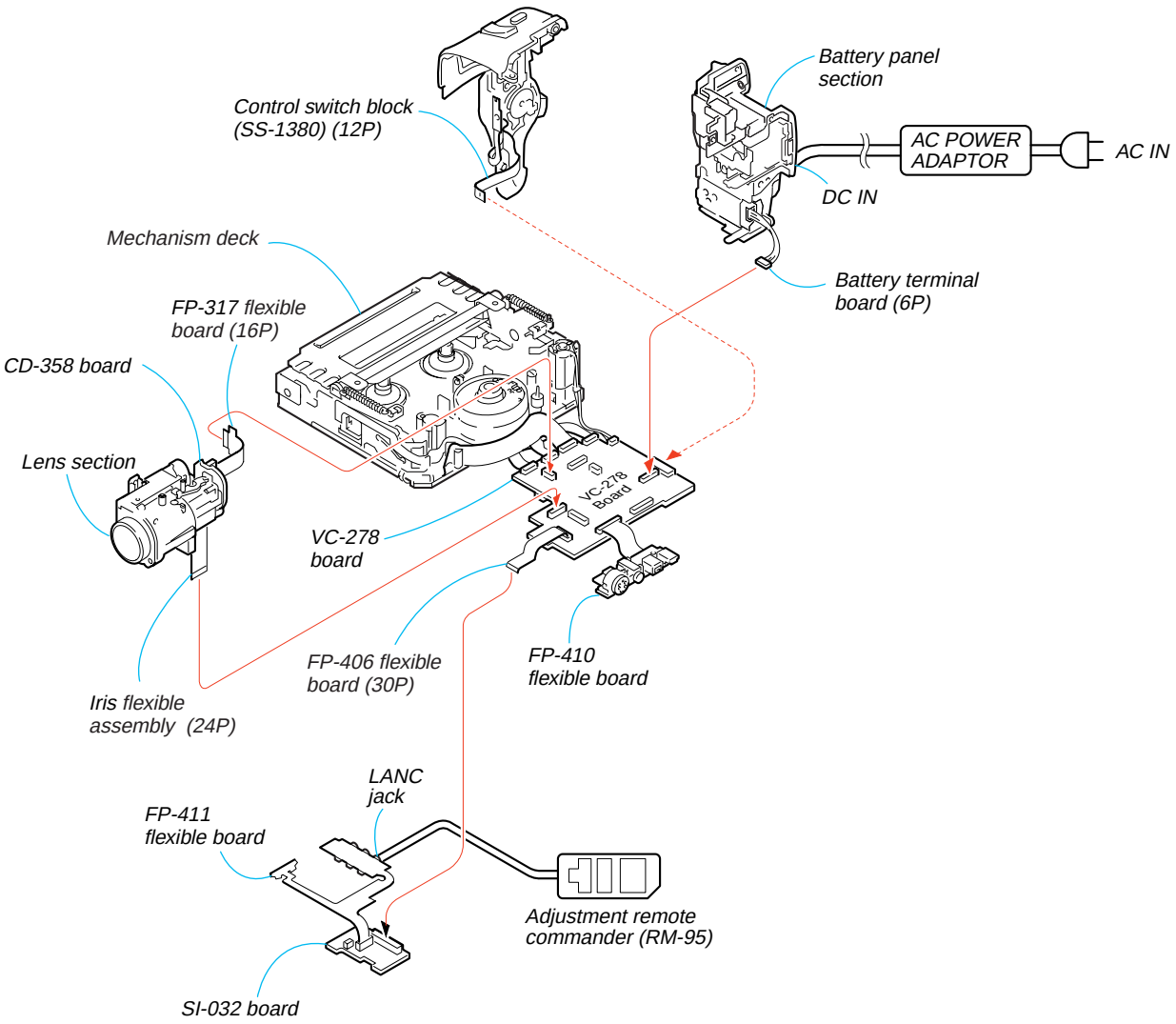
When you want to operate to zoom, connect the controls switch block (SS-1380).

Setting the “Forced Camera Power ON” mode

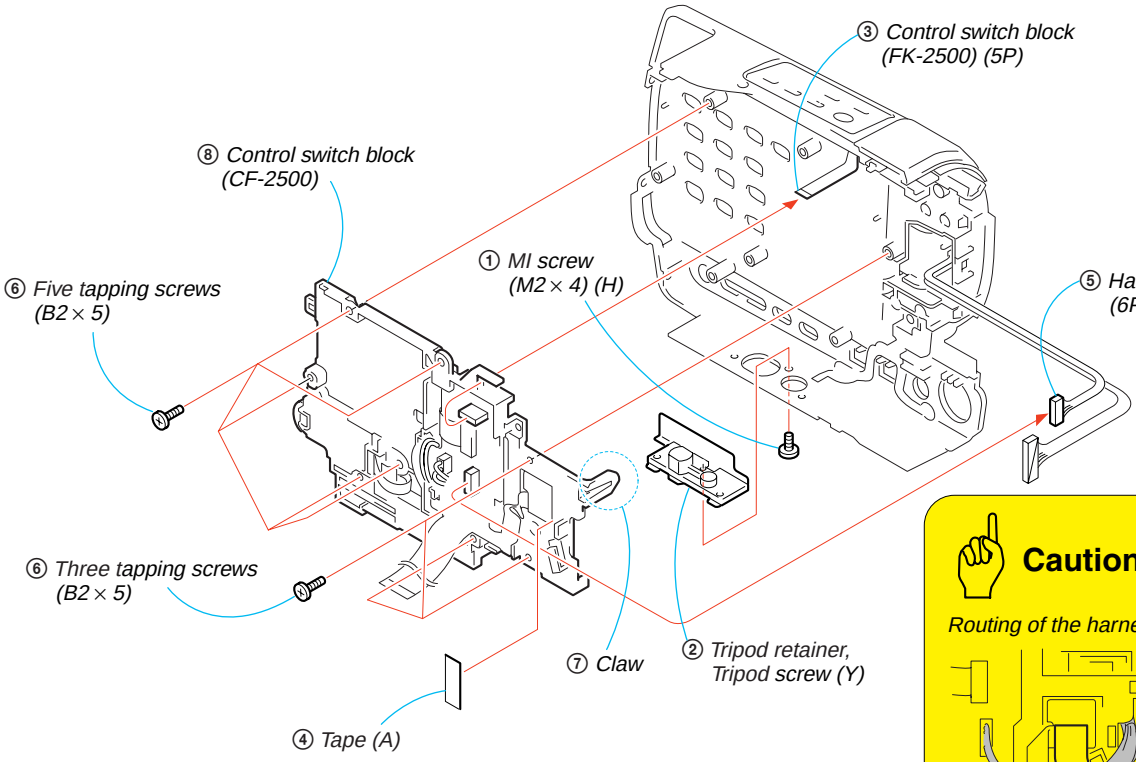
1) Select page: 0, address: 01, and set data: 01.
2) Select page: 0, address: 10, and set data: 00.
3) Select page: D, address: 10, set data: 01 and press the PAUSE button of the adjustment remote commander.

Exiting the “Forced Camera Power ON” mode

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 0, address: 10, and set data: 00.
3) Select page: D, address: 10, set data: 00, and press the PAUSE button of the adjustment remote commander.
4) Select page : 0, address: 01, and set data: 00.

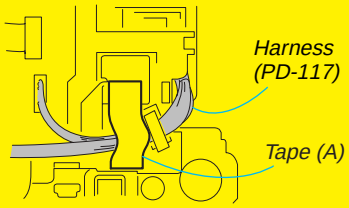


2-24. CONTROL SWITCH BLOCK (CF-2500)

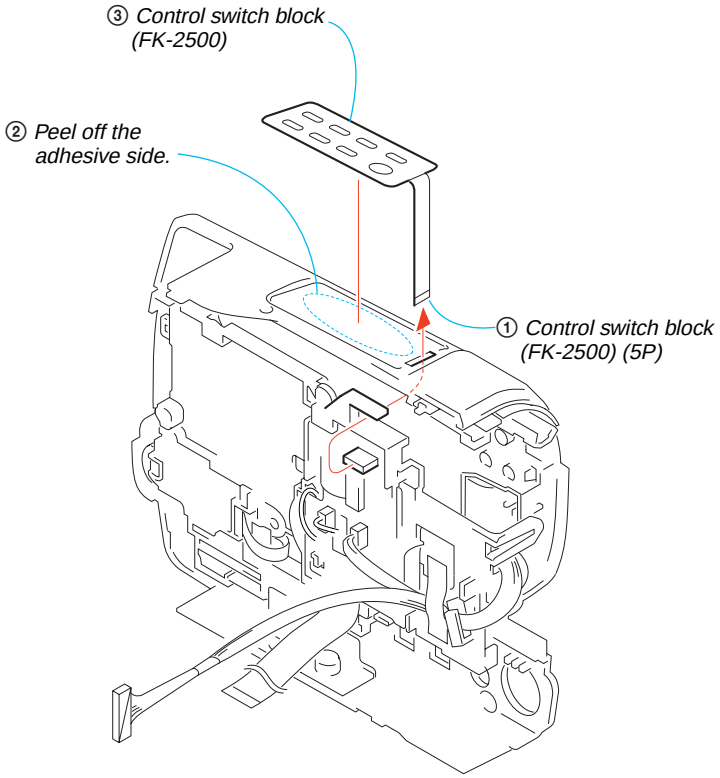

③ Control switch block (FK-2500) (5P)
⑧ Control switch block (CF-2500)
① MI screw (M2 × 4) (H)
⑤ Harness (PD-117) (6P)
⑥ Five tapping screws (B2 × 5)
⑥ Three tapping screws (B2 × 5)
⑦ Claw
② Tripod retainer, Tripod screw (Y)
④ Tape (A)

Caution

Routing of the harness (PD-117) .

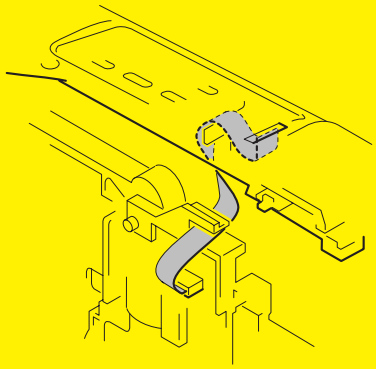


2-25. CONTROL SWITCH BLOCK (FK-2500)



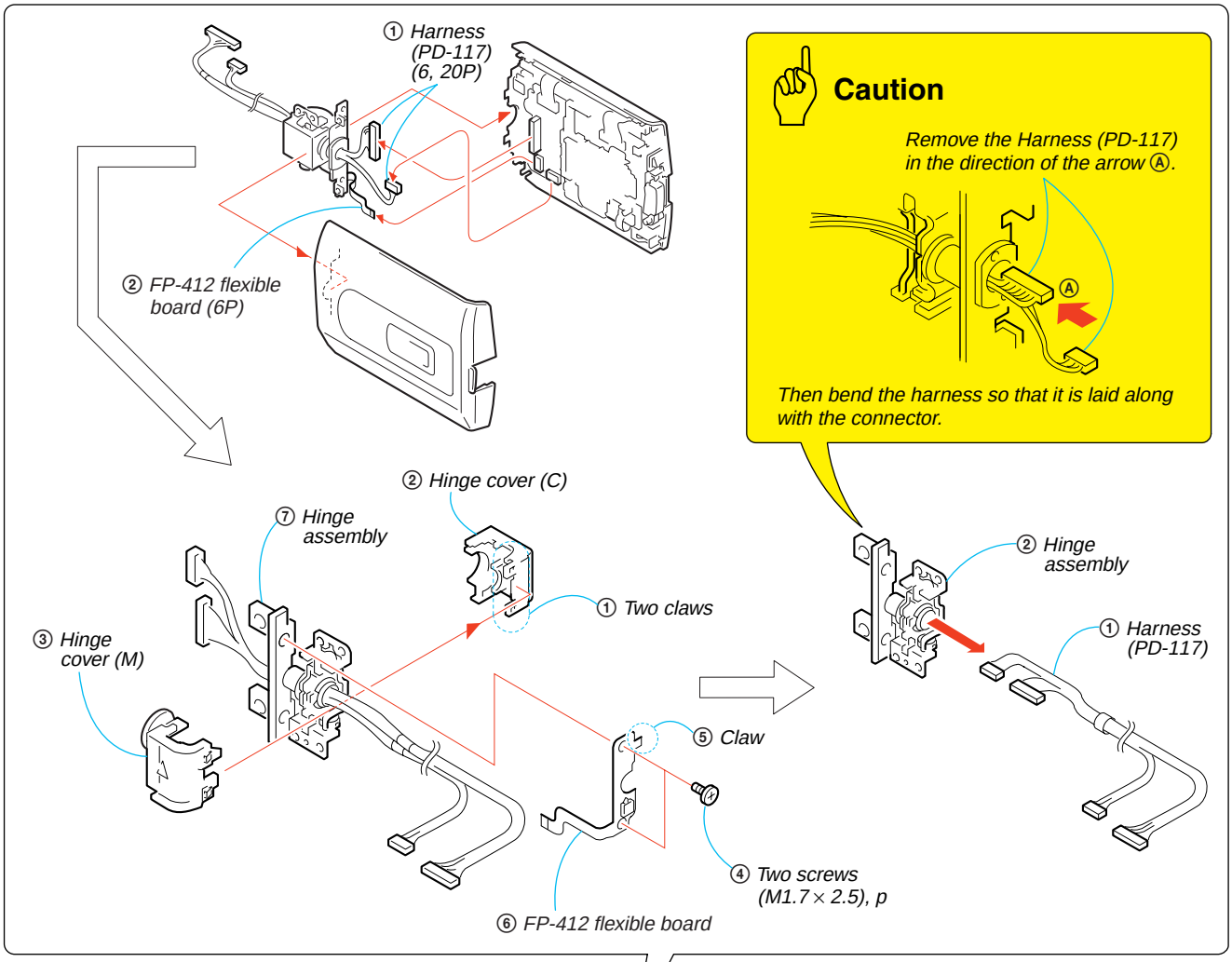
Caution

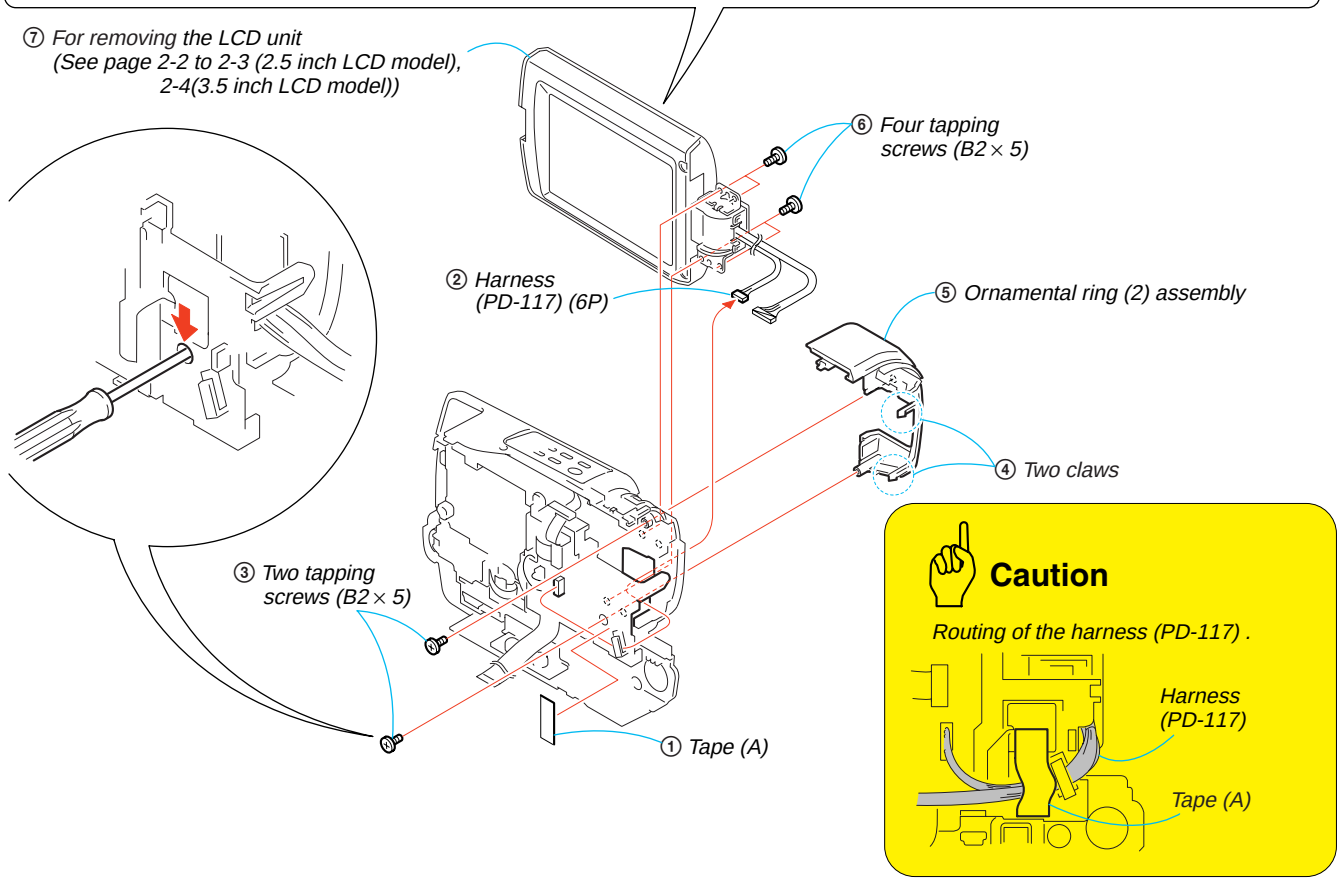
Routing of the flexible board of the Operation Control switch block (FK-2500).



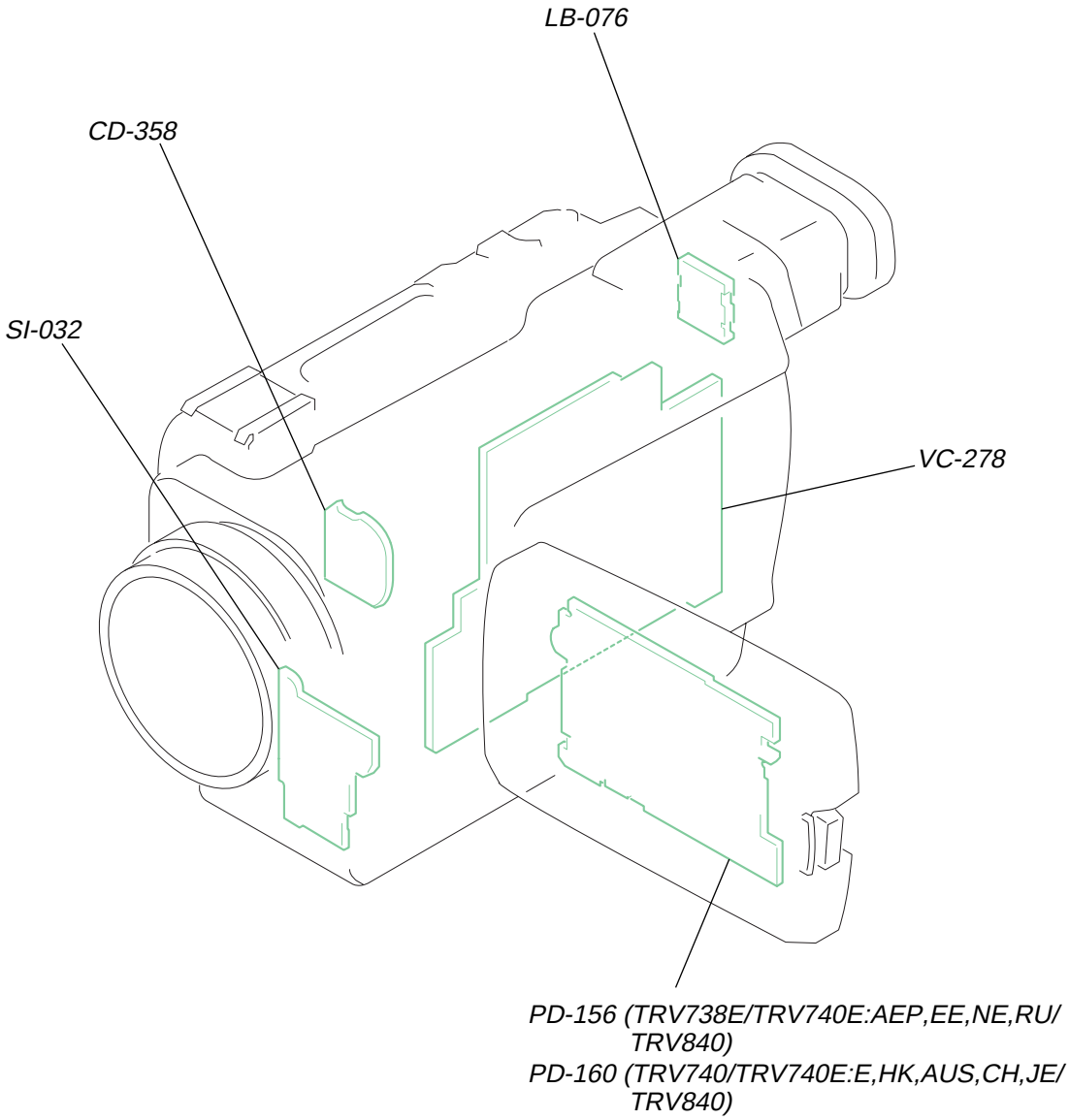
2-26. HINGE SECTION

REMOVING THE HINGE ASSEMBLY


① Harness (PD-117) (6, 20P)
② FP-412 flexible board (6P)
Caution
Remove the Harness (PD-117) in the direction of the arrow Ⓐ.
Then bend the harness so that it is laid along with the connector.
② Hinge cover (C)
⑦ Hinge assembly
① Two claws
③ Hinge cover (M)
⑤ Claw
④ Two screws (M1.7 × 2.5), p
⑥ FP-412 flexible board
② Hinge assembly
① Harness (PD-117)


⑦ For removing the LCD unit (See page 2-2 to 2-3 (2.5 inch LCD model), 2-4(3.5 inch LCD model))
⑥ Four tapping screws (B2 × 5)
② Harness (PD-117) (6P)
⑤ Ornamental ring (2) assembly
④ Two claws
③ Two tapping screws (B2 × 5)
① Tape (A)
Caution
Routing of the harness (PD-117) .
Harness (PD-117)
Tape (A)

2-27. CIRCUIT BOARDS LOCATION

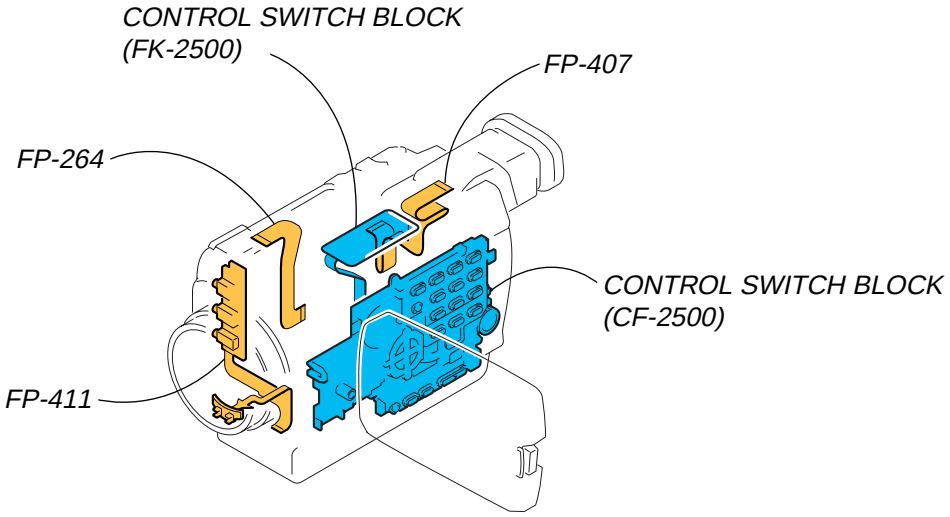


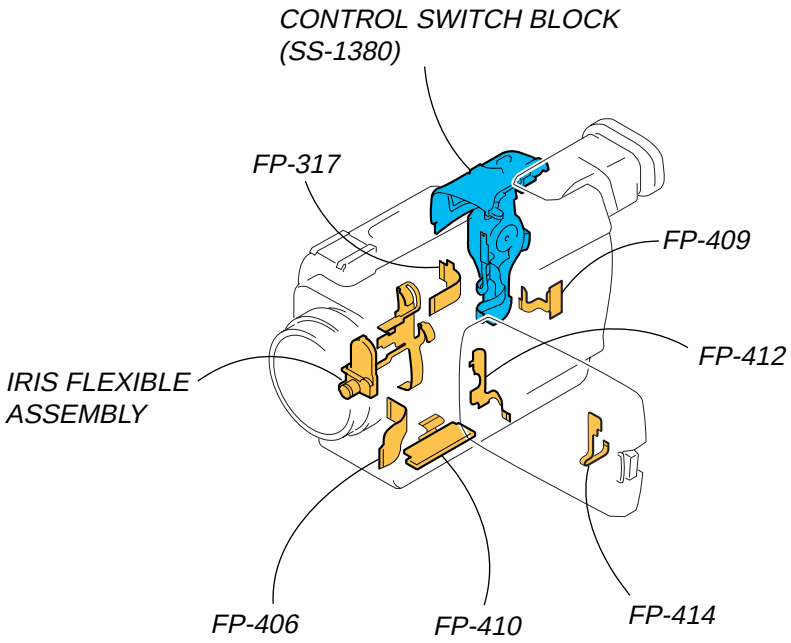
NAME	FUNCTION
CD-358	CCD IMAGER
LB-076	EVF BACK LIGHT
PD-156/160	CHA, DISPLAY DRIVE, BACK LIGHT/LCD DRIVE, TG
SI-032	STEADY SHOT, LASER LINK
VC-278	CAMERA, VIDEO, DV INTERFACE, CAMERA/MECHA/HI CONTROL, AUDIO, D/D CONVERTER

HK : Hong Kong model
AUS : Australian model
CH : Chinese model
JE : Tourist model
EE : East European model
NE : North European model
RU : Russian model

2-28. FLEXIBLE BOARDS LOCATION

The flexible boards contained in the mechanism deck and that in the lens device are not shown.





COVER

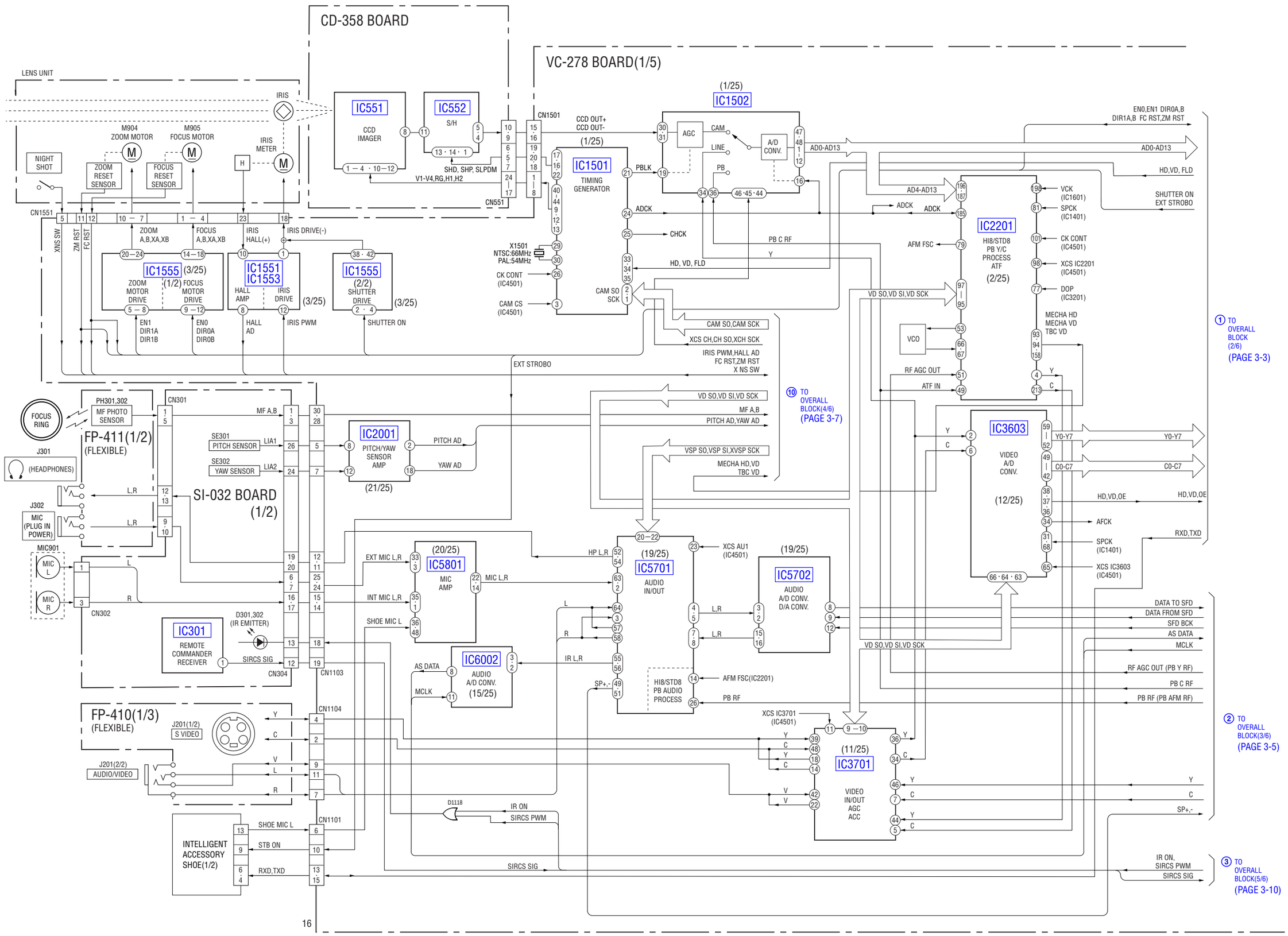
3. BLOCK DIAGRAMS

Link

OVERALL BLOCK DIAGRAM (1/6)	POWER BLOCK DIAGRAM (1/3)
OVERALL BLOCK DIAGRAM (2/6)	POWER BLOCK DIAGRAM (2/3)
OVERALL BLOCK DIAGRAM (3/6)	POWER BLOCK DIAGRAM (3/3)
OVERALL BLOCK DIAGRAM (4/6)	
OVERALL BLOCK DIAGRAM (5/6)	
OVERALL BLOCK DIAGRAM (6/6)	

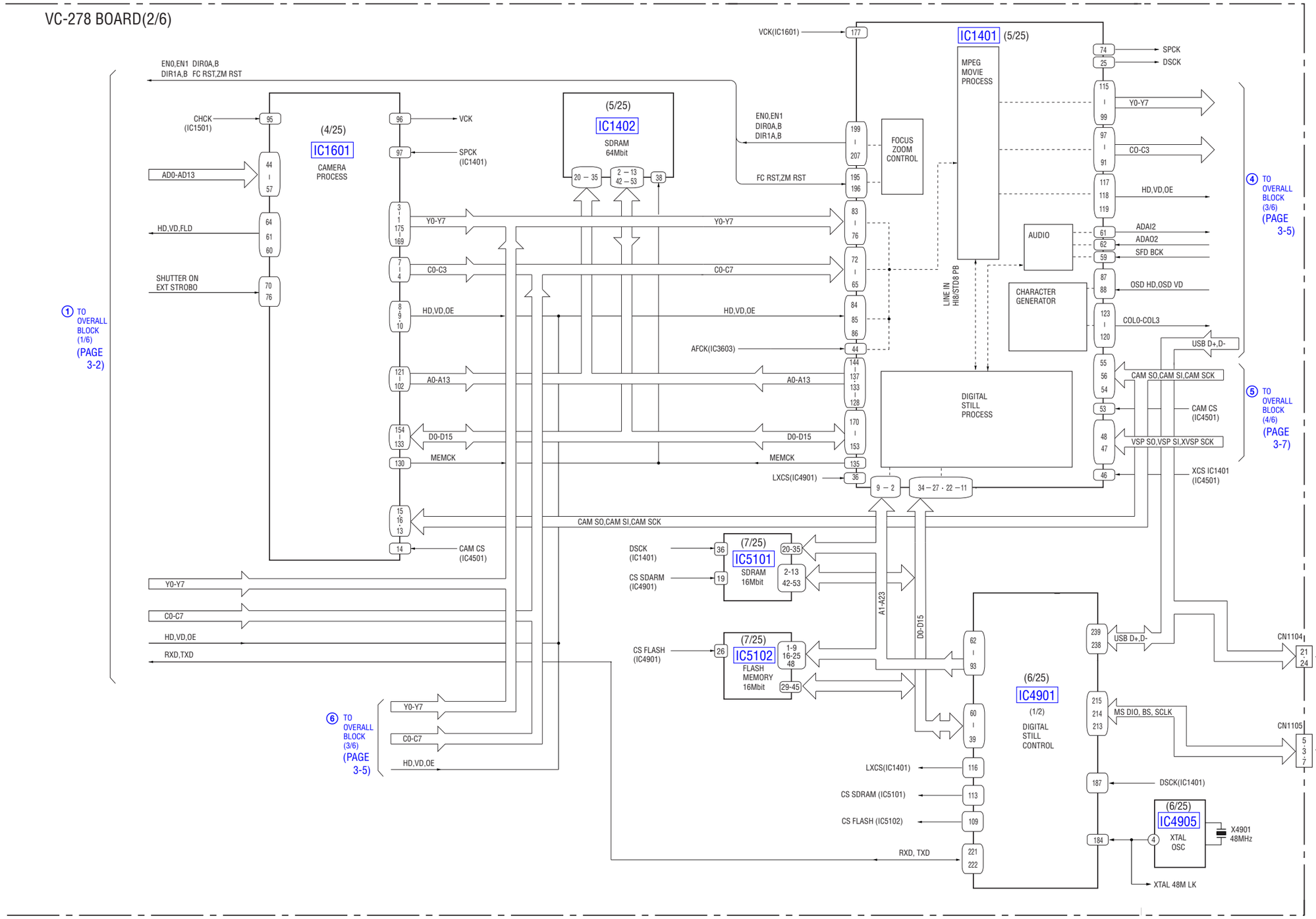
3-1. OVERALL BLOCK DIAGRAM (1/6)

( ) : Number in parenthesis ( ) indicates the division number of schematic diagram where the component is located.



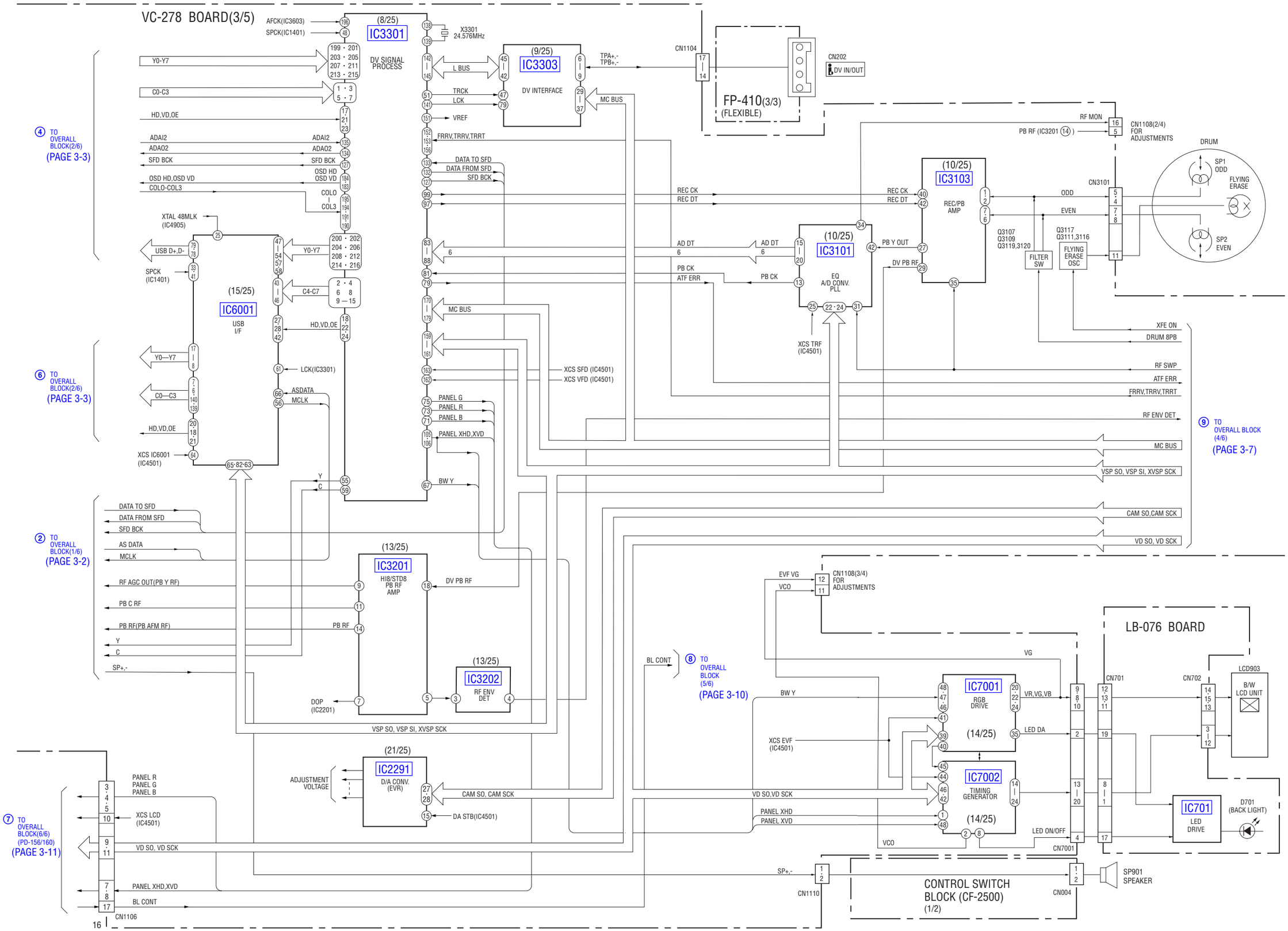
3-2. OVERALL BLOCK DIAGRAM (2/6)

( ) : Number in parenthesis ( ) indicates the division number of schematic diagram where the component is located.



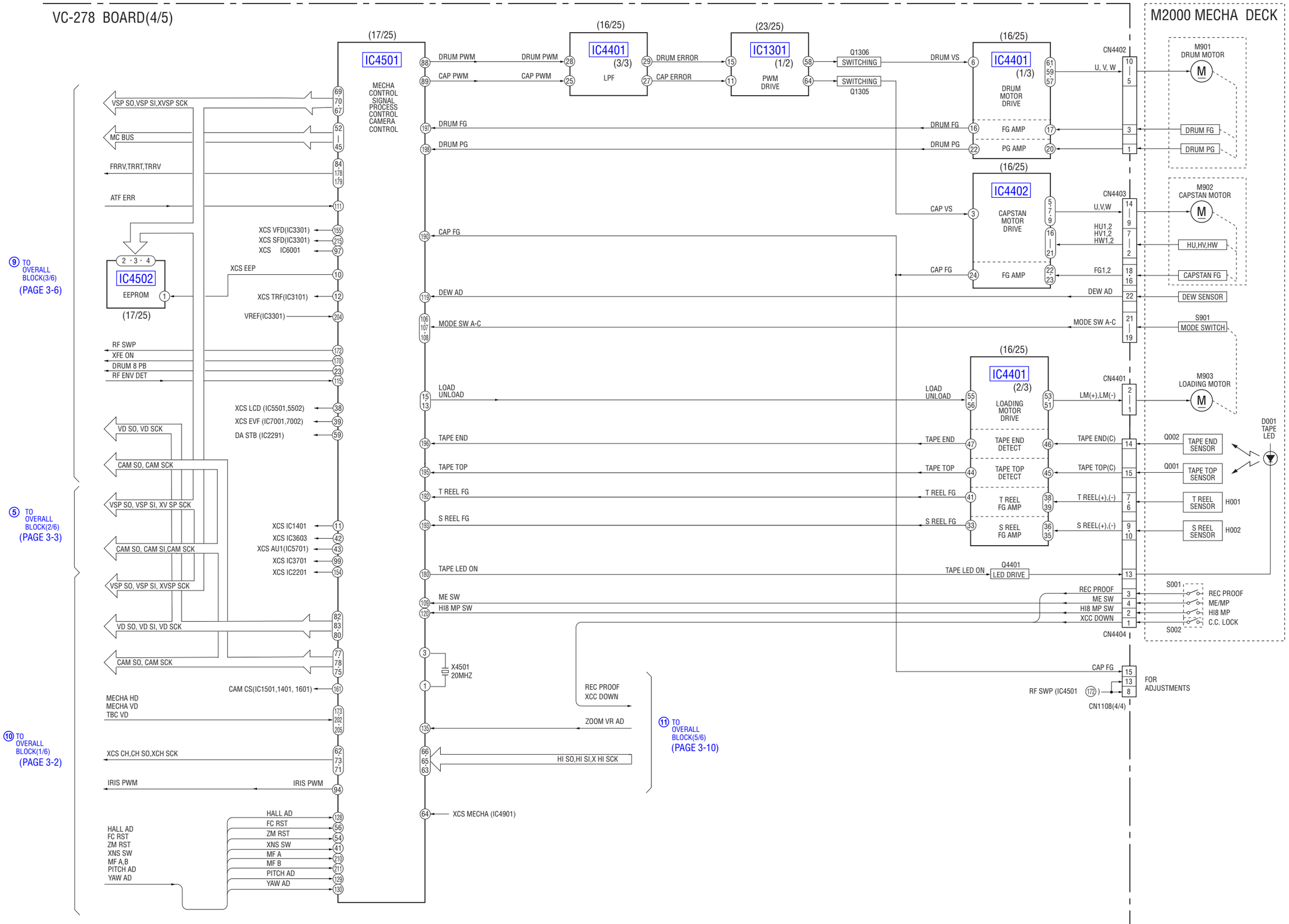
3-3. OVERALL BLOCK DIAGRAM (3/6)

( ) : Number in parenthesis ( ) indicates the division number of schematic diagram where the component is located.



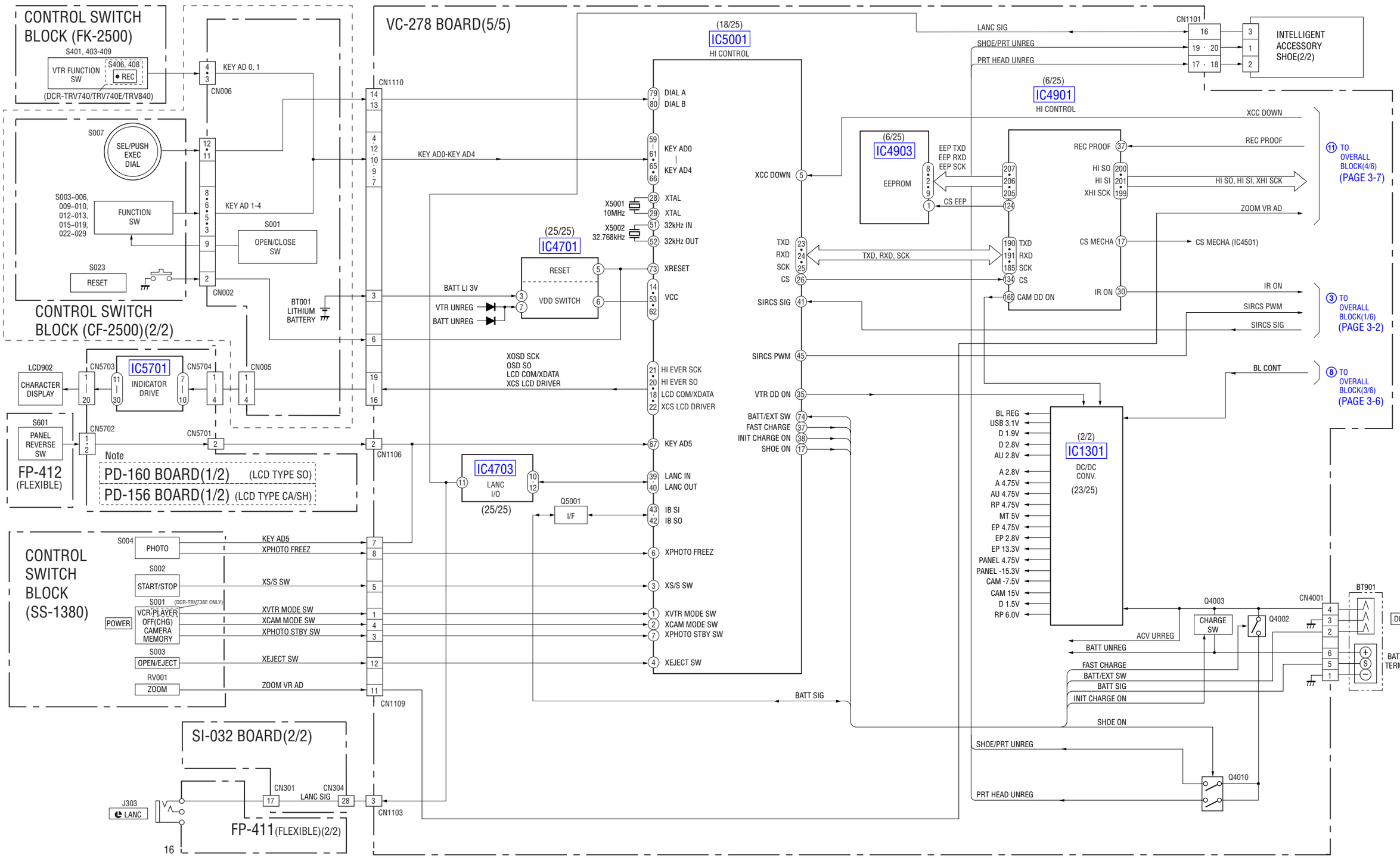
3-4. OVERALL BLOCK DIAGRAM (4/6)

( ) : Number in parenthesis ( ) indicates the division number of schematic diagram where the component is located.



3-5. OVERALL BLOCK DIAGRAM (5/6)

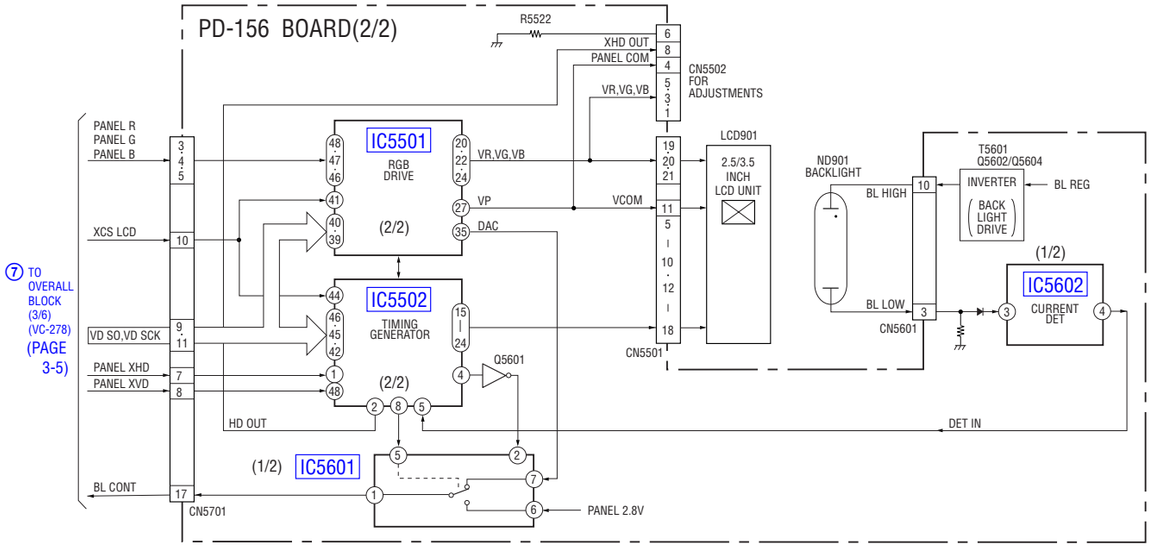
( ) : Number in parenthesis ( ) indicates the division number of schematic diagram where the component is located.

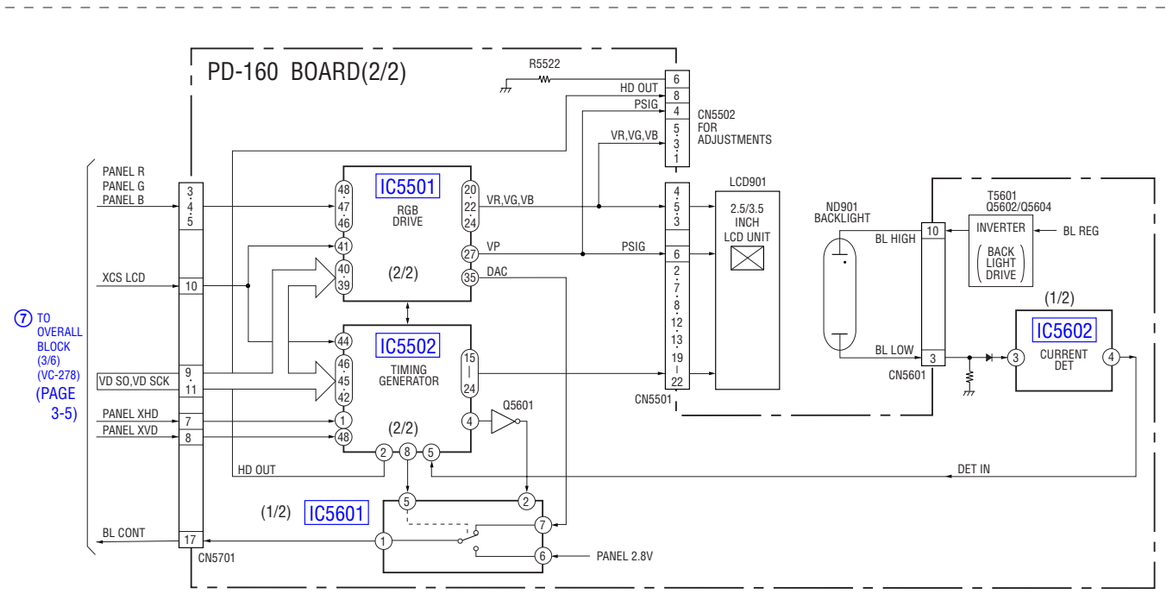


Note: Refer to "3-6. OVERALL BLOCK DIAGRAM (6/6)" for the discrimination of the LCD type.

3-6. OVERALL BLOCK DIAGRAM (6/6)

( ) : Number in parenthesis ( ) indicates the division number of schematic diagram where the component is located.





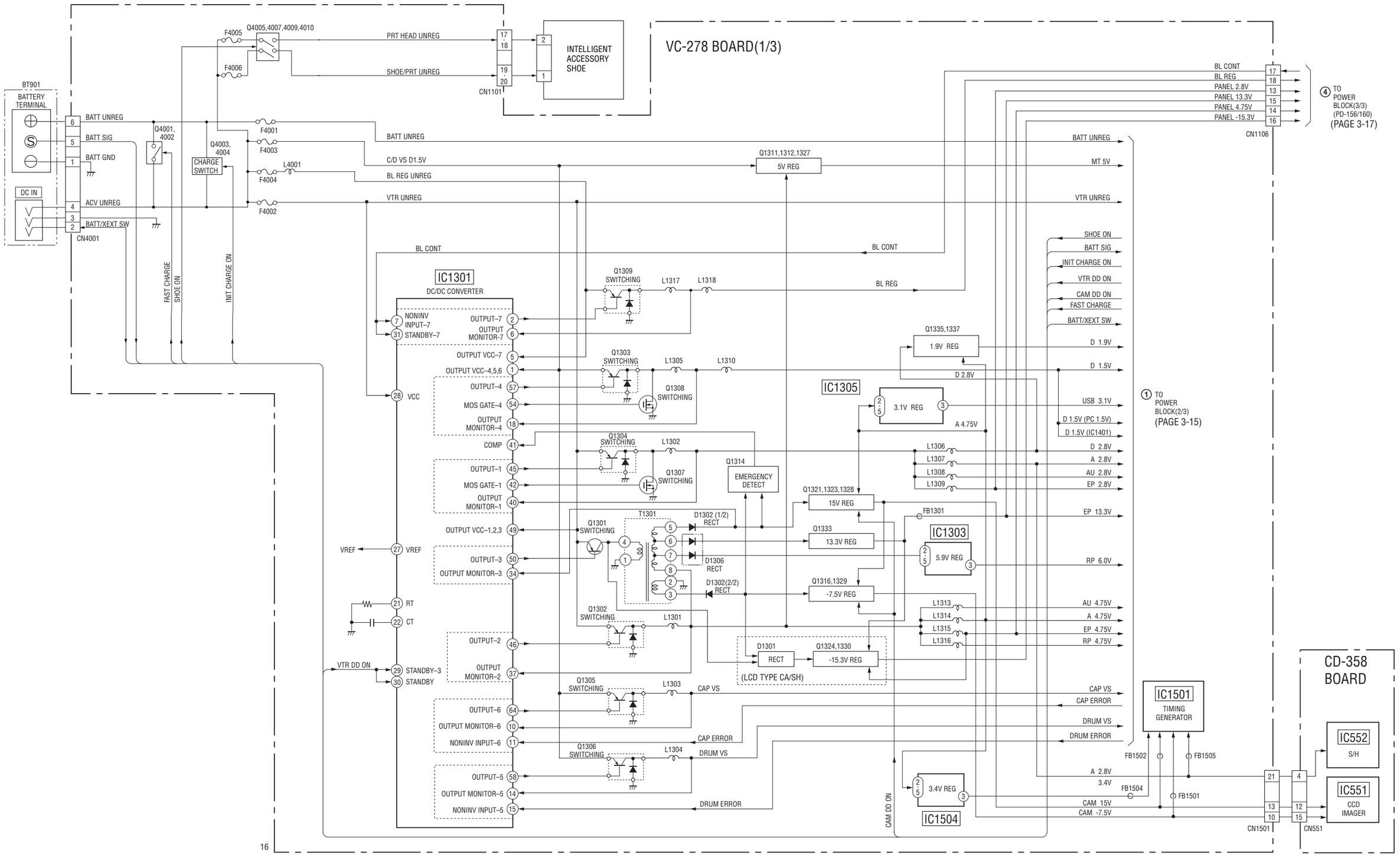
Note: By measuring the resistor value between Pin ⑥ of CN5502 on PD-156/160 board and GND, the type of LCD can be discriminated.

2.2kΩ: LCD TYPE SH (2.5 inches, 123k) DCR-TRV738E/TRV740E (*1)
6.8kΩ: LCD TYPE CA (3.5 inches, 123k) DCR-TRV840
22kΩ: LCD TYPE SO (2.5 inches, 61k) DCR-TRV740/TRV740E (*2)
47kΩ: LCD TYPE SO (3.5 inches, 123k) DCR-TRV840
*1: AEP/EE/NE/RU model, *2: E/AUS/HK/CH/JE model

• Abbreviation
EE : East European model
NE : North European model
RU : Russian model
AUS : Australian model
HK : Hong Kong model
CH : Chinese model
JE : Tourist model

3-7. POWER BLOCK DIAGRAM (1/3)

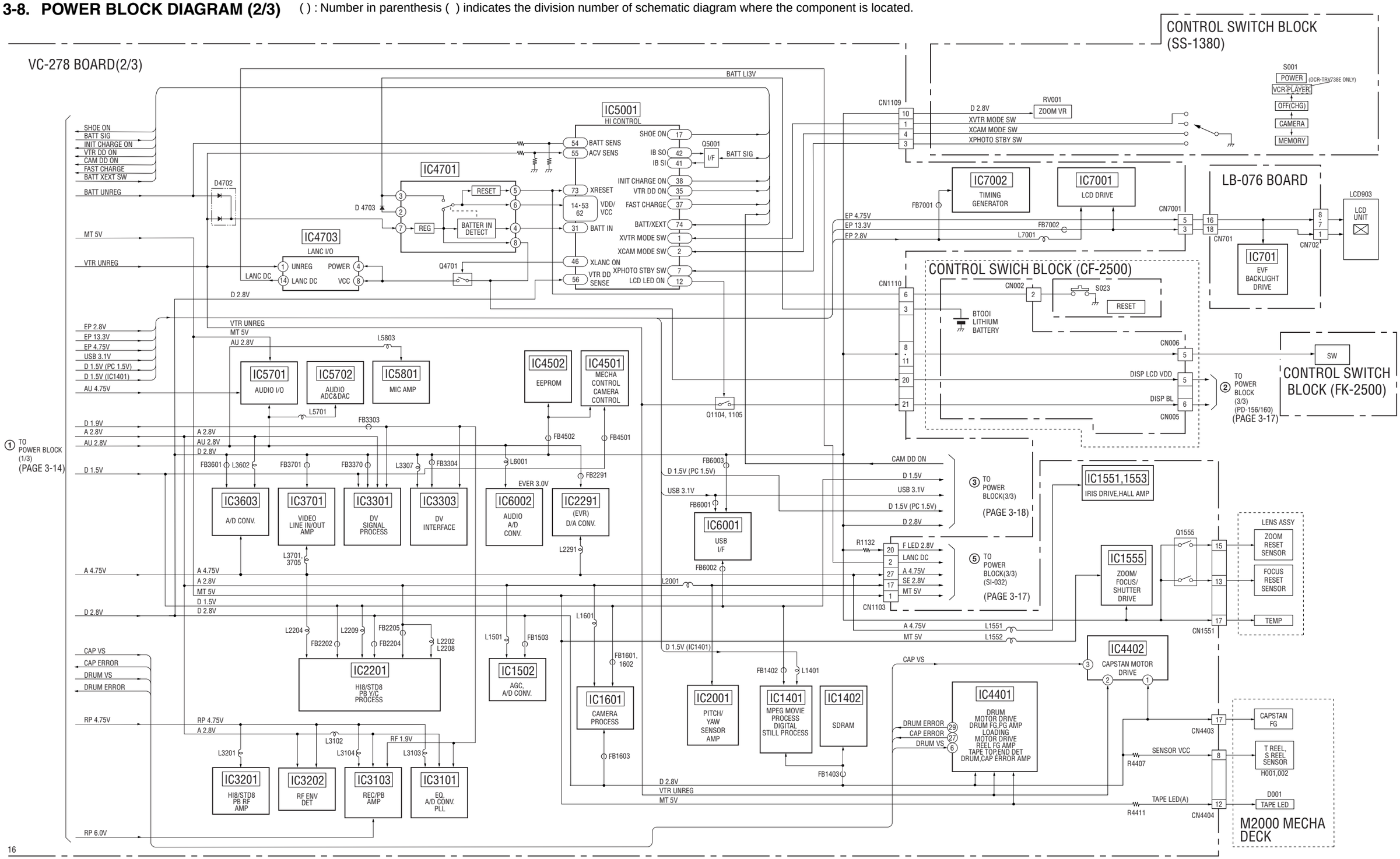
( ) : Number in parenthesis ( ) indicates the division number of schematic diagram where the component is located.



Note: Refer to "3-6. OVERALL BLOCK DIAGRAM (6/6)" for the discrimination of the LCD type.

3-8. POWER BLOCK DIAGRAM (2/3)

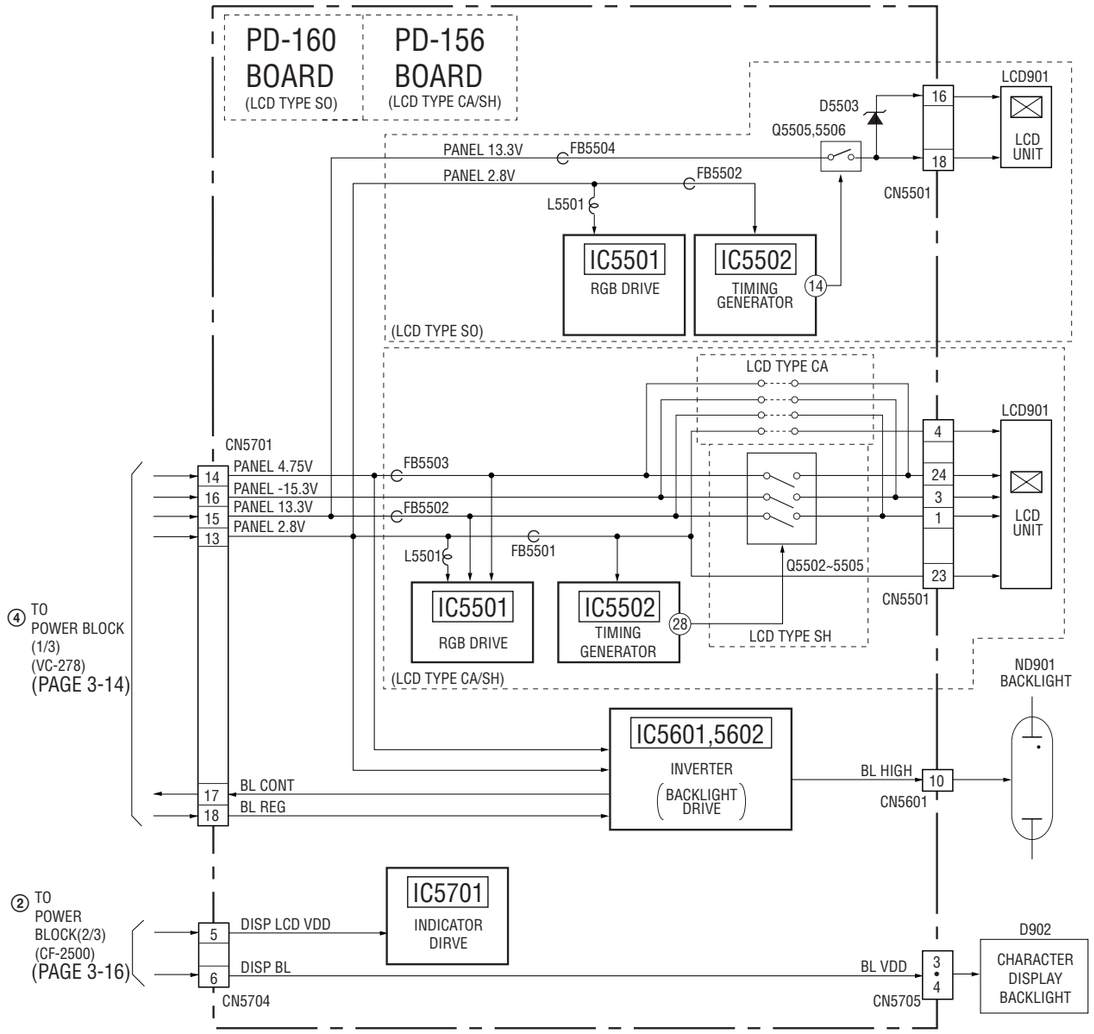
( ) : Number in parenthesis ( ) indicates the division number of schematic diagram where the component is located.

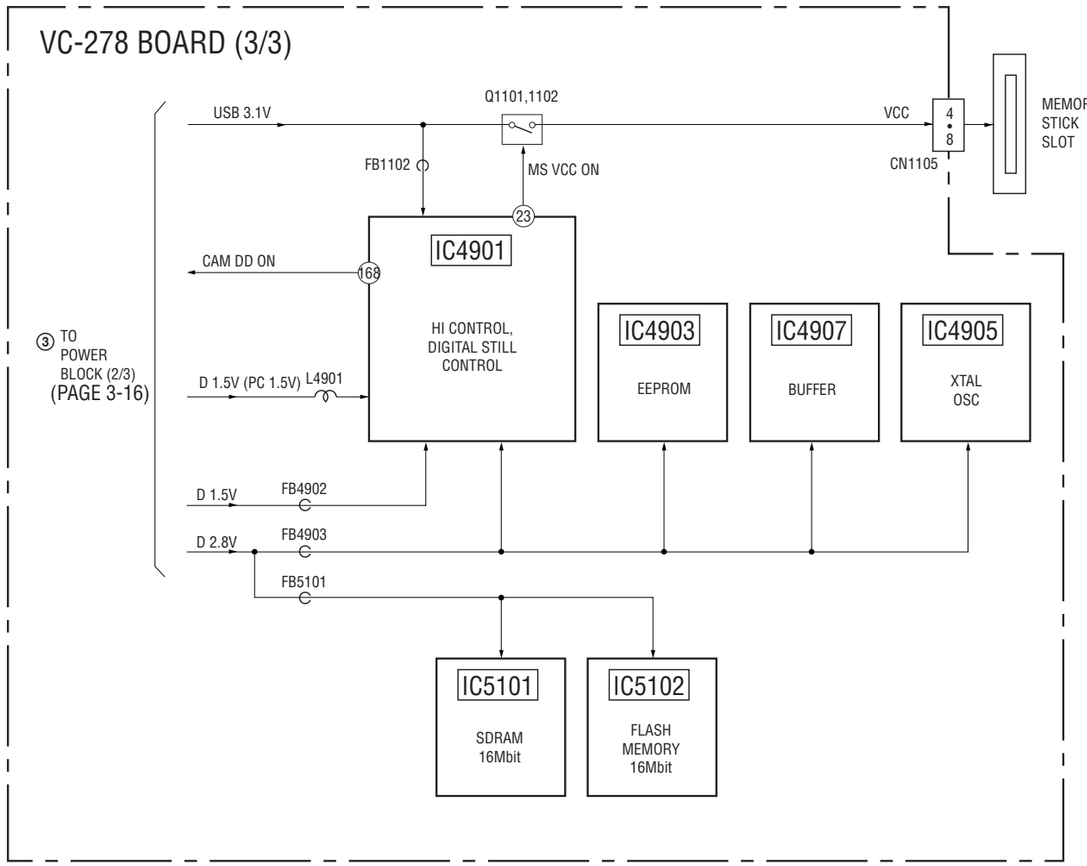


COVER

3-9. POWER BLOCK DIAGRAM (3/3)

( ) : Number in parenthesis ( ) indicates the division number of schematic diagram where the component is located.

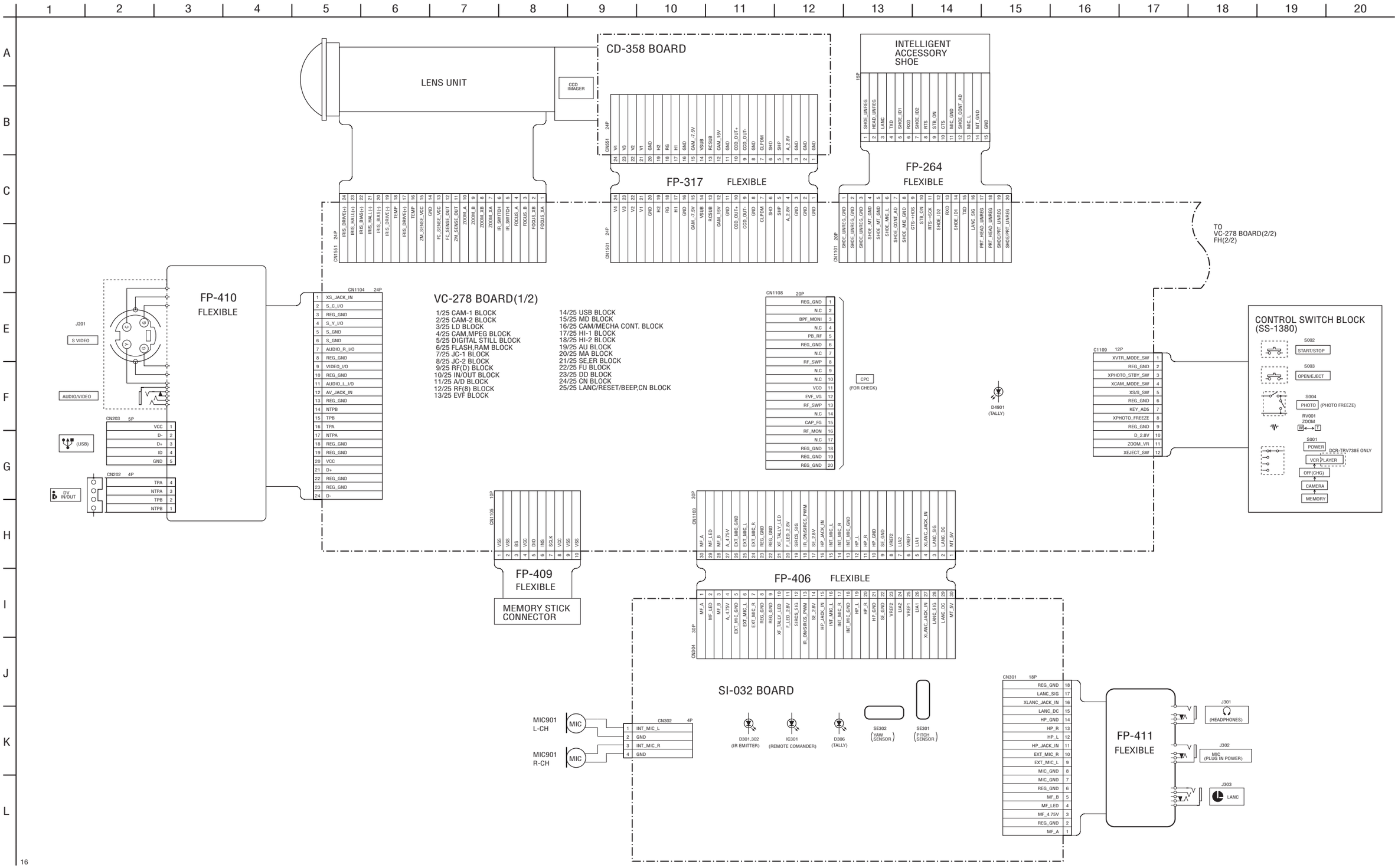




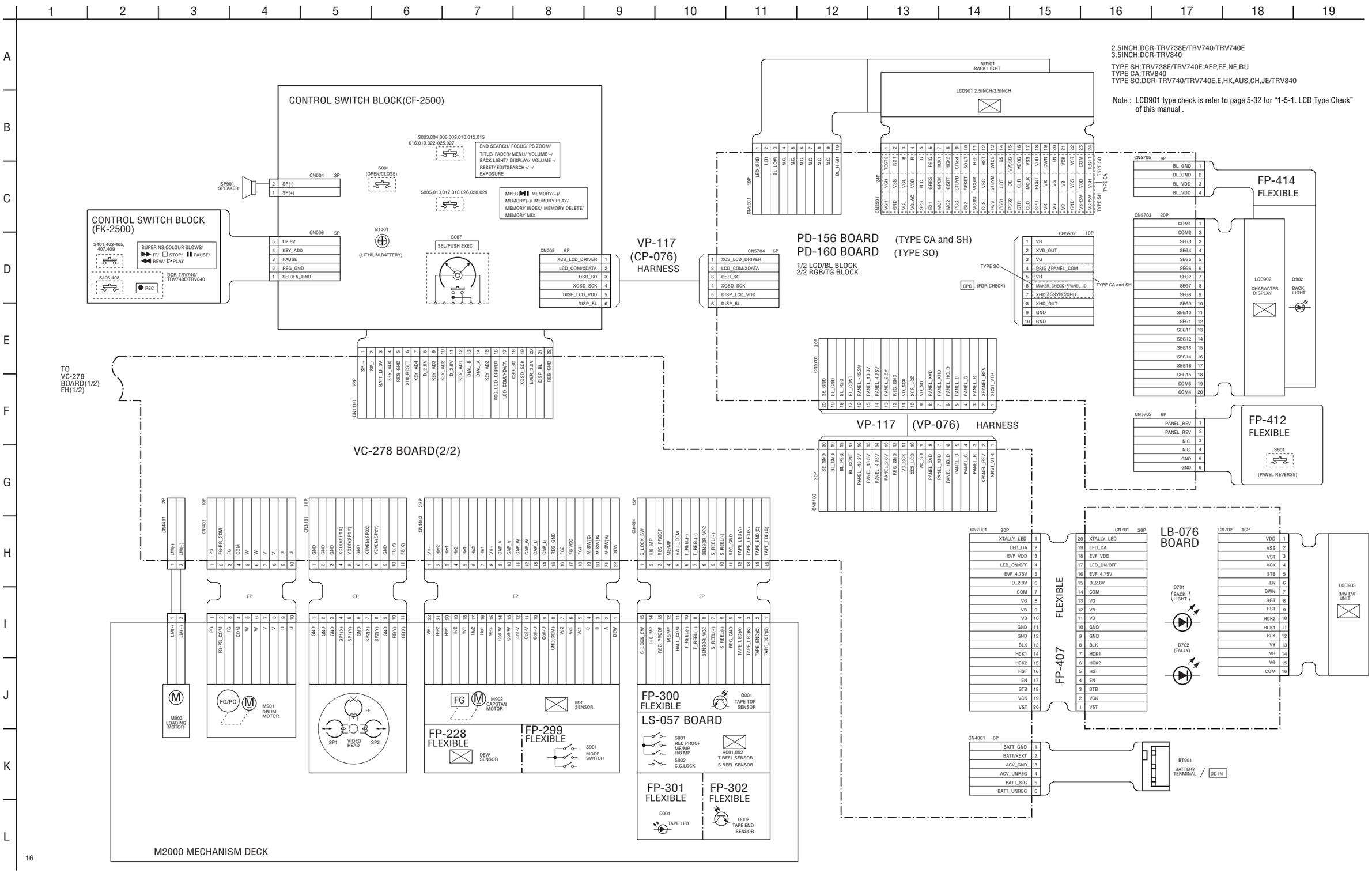
Note: Refer to "3-6. OVERALL BLOCK DIAGRAM (6/6)" for the discrimination of the LCD type.

SECTION 4
PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

4-1. FRAME SCHEMATIC DIAGRAM (1/2)



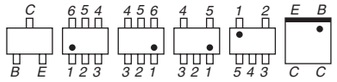
FRAME SCHEMATIC DIAGRAM (2/2)



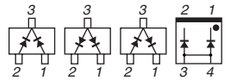
THIS NOTE IS COMMON FOR WIRING BOARDS AND SCHEMATIC DIAGRAMS
(In addition to this, the necessary note is printed in each block)

(For printed wiring boards)
- ▒▒▒: Pattern from the side which enables seeing.
  (The other layers' patterns are not indicated.)
- Through hole is omitted.
- Circled numbers refer to waveforms.
- There are few cases that the part printed on diagram isn't mounted in this model.
- Chip parts.

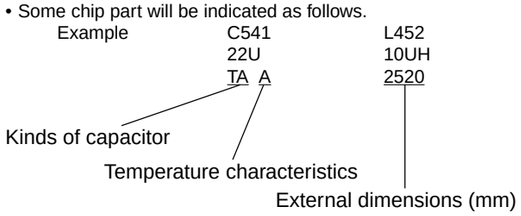
Transistor



Diode



(For schematic diagrams)
- All capacitors are in µF unless otherwise noted. p: pF.
  50V or less are not indicated except for electrolytics and tantalums.
- Chip resistors are 1/10W unless otherwise noted.
  kΩ=1000Ω, MΩ=1000kΩ.
- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minus side of tantalum capacitor, Because it is damaged by the heat.
- Some chip part will be indicated as follows.



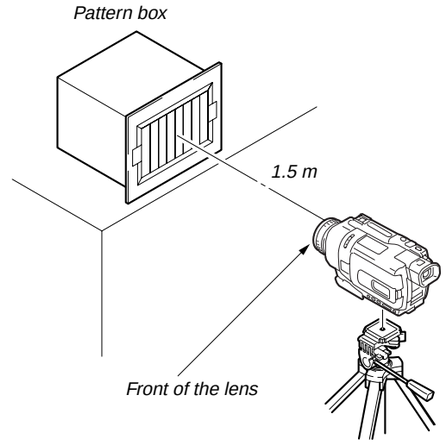
- Constants of resistors, capacitors, ICs and etc with XX indicate that they are not used.
  In such cases, the unused circuits may be indicated.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- Signal name
  XEDIT → $\overline{\text{EDIT}}$ PB/XREC → PB/$\overline{\text{REC}}$
- : non flammable resistor
- : fusible resistor
- : panel designation
- : B+ Line *
- : B– Line *
- : IN/OUT direction of (+,–) B LINE. *
- : adjustment for repair. *
- Circled numbers refer to waveforms. *

* Indicated by the color red.

Note :	**Note :**
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

(Measuring conditions voltage and waveform)
- Voltages and waveforms are measured between the measurement points and ground when camera shoots color bar chart of pattern box. They are reference values and reference waveforms. *
  (VOM of DC 10 MΩ input impedance is used.).
- Voltage values change depending upon input impedance of VOM used.) *

1. Connection



2. Adjust the distance so that the output waveform of Fig. a and the Fig. b can be obtain.

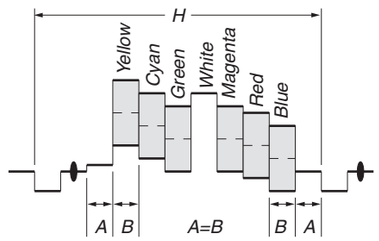


Fig. a (Video output terminal output waveform)

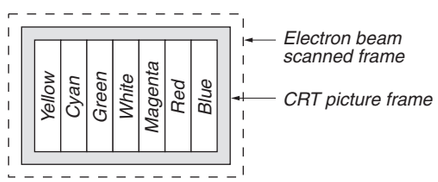


Fig.b (Picture on monitor TV)

When indicating parts by reference number, please include the board name.

COVER

4-2. SCHEMATIC DIAGRAMS

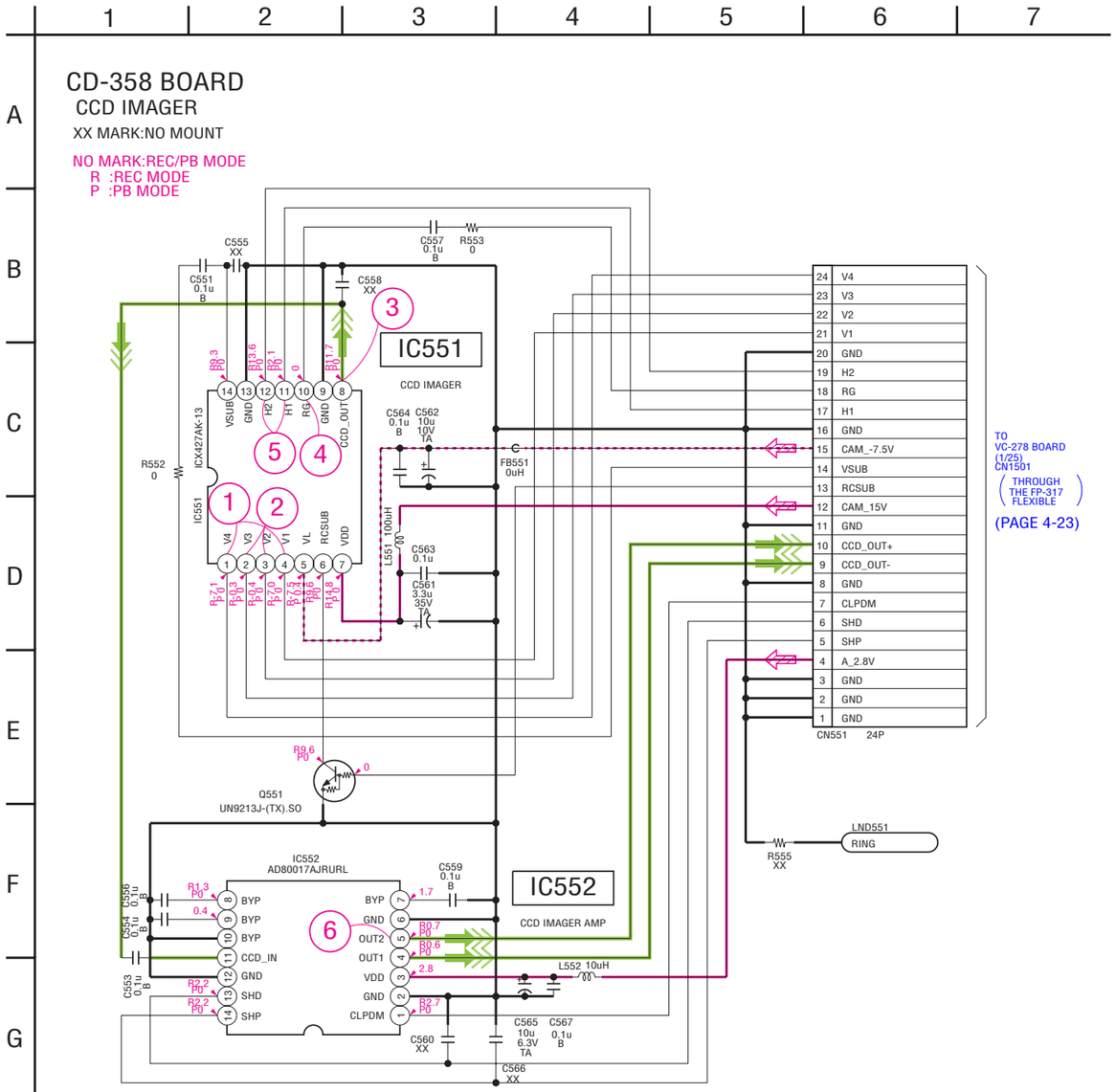
Link

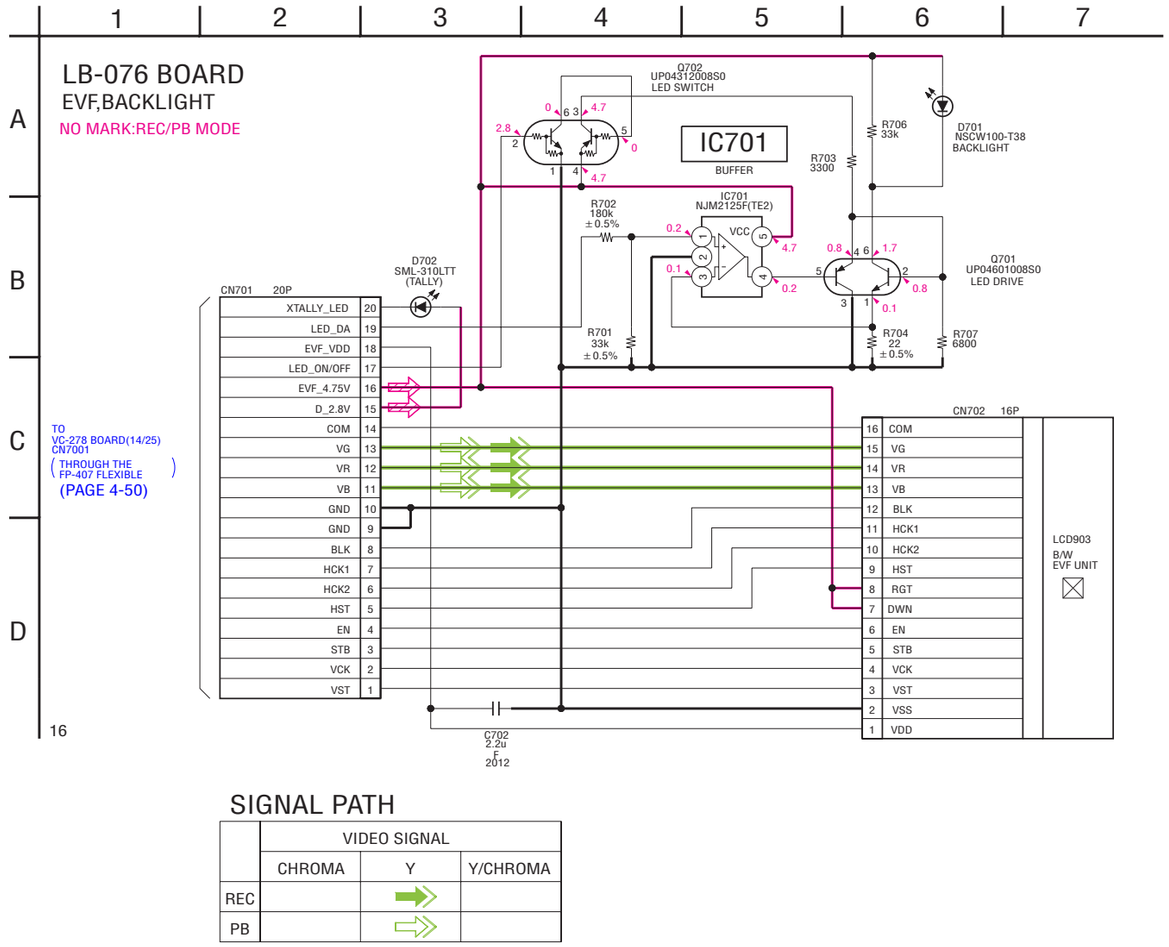
CD-358 BOARD (CCD IMAGER)	
LB-076 BOARD (EVF, BACK LIGHT)	
SI-032 BOARD (STEADY SHOT, LASER LINK)	
CONTROL SWITCH BLOCK (CF-2500)	
PD-156 BOARD (1/2) (CHA, DISPLAY DRIVE, BACK LIGHT)	
PD-156 BOARD (2/2) (LCD DRIVE, TG)	
PD-160 BOARD (1/2) (CHA, DISPLAY DRIVE, BACK LIGHT)	
PD-160 BOARD (2/2) (LCD DRIVE, TG)	
LS-057, FP-228, FP-299, FP-300, FP-302, FP-301 FLEXIBLE BOARDS	
FP-410 FLEXIBLE BOARD (AV TERMINAL)	
CONTROL SWITCH BLOCK (SS-1380)	

COMMON NOTE FOR SCHEMATIC DIAGRAMS	WAVEFORMS

4-2. SCHEMATIC DIAGRAMS

For Schematic Diagram
- Refer to page 4-73 for printed wiring board.
- Refer to page 4-91 for waveforms.





Precautions Upon Replacing CCD imager

- The CD-358 board mounted as a repair part is not equipped with a CCD imager.
  When replacing this board, remove the CCD imager from the old one and mount it onto the new one.
- If the CCD imager has been replaced, carry out all the adjustments for the camera section.
- As the CCD imager may be damaged by static electricity from its structure, handle it carefully like for the MOS IC.
  In addition, ensure that the receiver is not covered with dusts nor exposed to strong light.

SIGNAL PATH

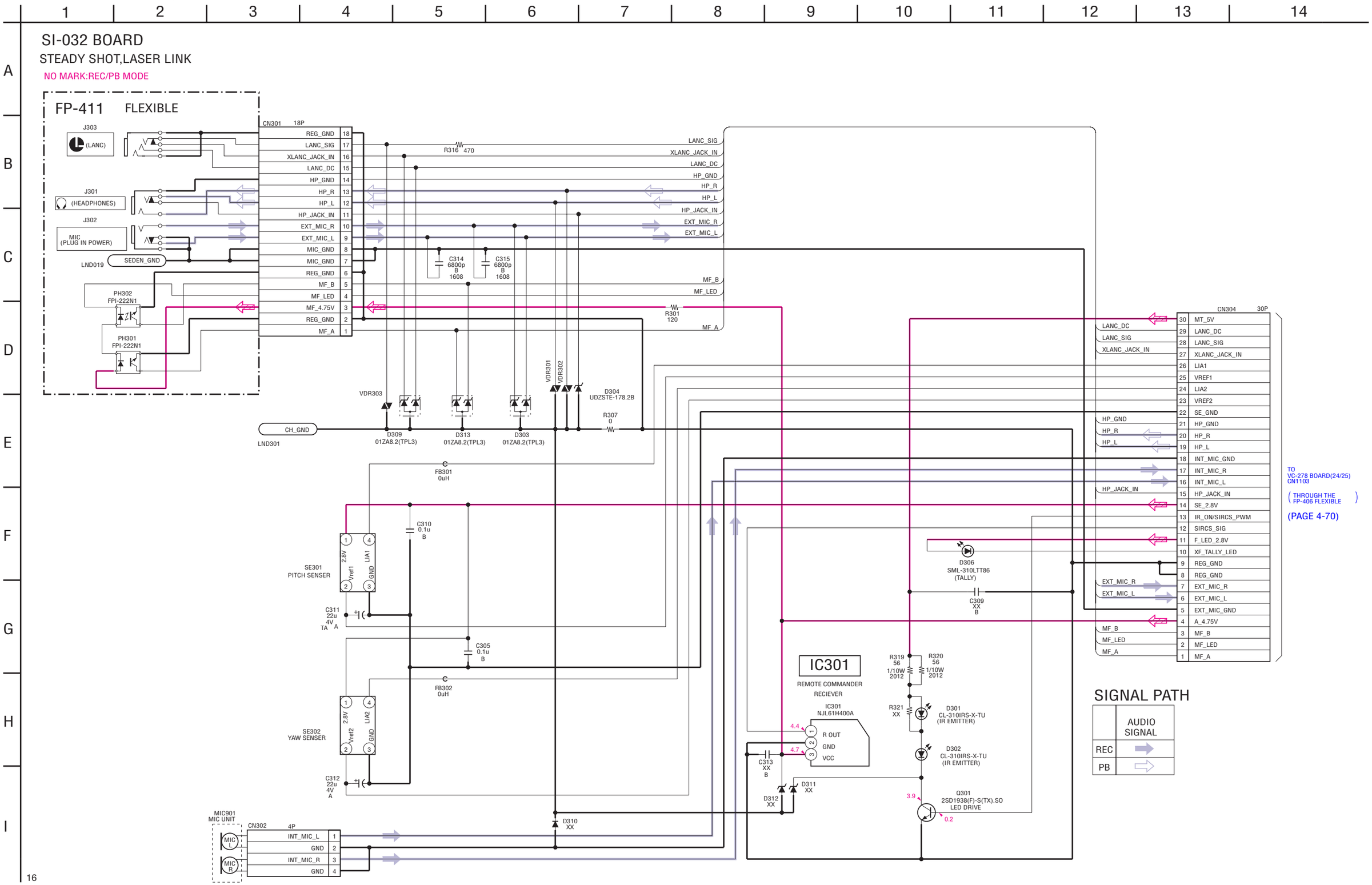
	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC			⇛
PB			

SIGNAL PATH

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC		⇒	
PB		⇨	

For Schematic Diagram

• Refer to page 4-75 for printed wiring board.



CONTROL SWITCH BLOCK(CF-2500)

XX MARK:NO MOUNT

22P

SP+	1	
SP-	2	
BATT_LI_3V	3	
KEY_AD0	4	
REG_GND	5	
XHI_RESET	6	
KEY_AD4	7	
D_2.8V	8	
KEY_AD3	9	
KEY_AD2	10	
D_2.8V	11	
KEY_AD1	12	
DIAL_B	13	
DIAL_A	14	
KEY_AD2	15	
XCS_LCD_DRIVER	16	
LCD_COM/XDATA	17	
OSD_SO	18	
XOSD_SCK	19	
EVER_3.0V	20	
DISP_BL	21	
REG_GND	22	

TO VC-278 BOARD (25/25) CN1110

(PAGE 4-71)

(TYPE CA and SH MODEL)

TO PD-156 BOARD(1/2) CN5704 (THROUGH THE VP-117(CP-076) HARNESS)

(PAGE 4-13)

TO PD-160 BOARD(1/2) CN5704 (THROUGH THE VP-117(CP-076) HARNESS)

(PAGE 4-17)

(TYPE SO MODEL)

CN005 6P

XCS_LCD_DRIVER	1	CL001
LCD_COM/XDATA	2	CL002
OSD_SO	3	CL003
XOSD_SCK	4	CL004
DISP_LCD_VDD	5	CL005
DISP_BL	6	CL006

CN004 2P

SP(+)	1	SP901 SPEAKER
SP(-)	2	

LND004 CH GND

BT001 (LITHIUM BATTERY)

CN002 14P

1	REG_GND
2	XHI_RESET
3	KEY_AD4
4	D_2.8V
5	KEY_AD3
6	KEY_AD2
7	D_2.8V
8	KEY_AD1
9	OPEN/CLOSE SW
10	REG_GND
11	DIAL_B
12	DIAL_A
13	KEY_AD2
14	REG_GND

S001 (OPEN/CLOSE)

CN006 5P: 5 SENSEN_GND, 4 REG_GND, 3 PAUSE, 2 KEY_ADD, 1 D2.8V

R027 20k, R004 20k, R003 20k, R002 20k

S023 RESET

S007 SEL/PUSH EXEC

CH GND LND002

CH GND LND003

S004 FOCUS — R006 2400

S016 BACK LIGHT — R010 3000

S010 FADER — R013 4400

S027 EXPOSURE — R016 7800

R019 16.4k

R022 54k

S026 MEMORY INDEX — R007 2400

S005 MPEG ▶II — R011 3000

S029 MEMORY MIX — R014 4400

S028 MEMORY DELETE — R017 7800

S013 MEMORY(+) — R020 16.4k

S017 MEMORY(-) — R023 54k

S018 MEMORY PLAY

S003 END SEARCH — R008 2400

S006 PB ZOOM — R012 3000

S009 TITLE — R015 4400

S012 MENU — R018 7800

S015 VOLUME + — R021 16.4k

S022 VOLUME - — R024 54k

S019 DISPLAY

S024 EDITSEARCH(+) — R025 2400

S025 EDITSEARCH(-) — R026 3000

CONTROL SWITCH BLOCK (FK-2500)

CL001 — R409 1M

S405 PAUSE

S401 SUPER NS/COLOUR SLOWS

S404 STOP — R403 1200

S407 REW — R405 1500

S409 PLAY — R407 2200

S403 FF — R408 3900

(DCR-TRV740/TRV740E/TRV840)

S406 REC — R406 8200

S408

Abbreviation
EE :East European
NE :North European
RU :Russian
HK :Hong Kong
AUS:Australian
CH :Chinese
JE :Tourist

TYPE SH:TRV738E/TRV740E:AEP,EE,NE,RU
TYPE CA:TRV840
TYPE SO:DCR-TRV740/TRV740E:E,HK,AUS,CH,JE/TRV840

Note : LCD901 type check is refer to page 5-32 for "1-5-1. LCD Type Check" of this manual .

CONTROL SWITCH BLOCK(CF-2500,FK-2500) are replaced as a block. So that its PRINTED WIRING BOARD are omitted.

SIGNAL PATH

	AUDIO SIGNAL
ANALOG IN	⇨
DV IN	⇨

For Schematic Diagram
- Refer to page 4-79 for printed wiring board.
- Refer to page 4-91 for waveforms.

PD-156 BOARD(1/2) (TYPE CA and SH MODEL)

LCD DRIVER,BACK LIGHT(BL/LCD BLOCK)

XX MARK:NO MOUNT

TYPE SH :TRV738E/TRV740E:AEP,EE,NE,RU
TYPE CA :TRV840

LCD Type Check
By measuring resistor value between pin ⑥ and pin ⑩ (GND) of CN5502. the type of LCD can be discriminated.
2.2k:LCD type SH
6.8k:LCD type CA

Abbreviation
EE:East European
NE:North European
RU:Russian

Note :
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Note :
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

SIGNAL PATH

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
ANALOG IN	➡		
DV IN	⇨		

CN5701 20P
SE_GND 20
BL_GND 19
BL_REG 18
BL_CONT 17
PANEL_-15.3V 16
PANEL_13.3V 15
PANEL_4.75V 14
PANEL_2.8V 13
REG_GND 12
VD_SCK 11
XCS_LCD 10
VD_SO 9
PANEL_XVD 8
PANEL_XHD 7
PANEL_HOLD 6
PANEL_B 5
PANEL_G 4
PANEL_R 3
XPANEL_REV 2
XRST_VTR 1

TO VC-278 BOARD (24/25) CN1106 (THROUGH THE VP-117(VP-076) HARNESS) (PAGE 4-70)

PANEL_-15.3V, PANEL_13.3V, PANEL_4.75V, PANEL_2.8V, REG_GND, XVC_SCK, XCS_PANEL, XVC_SO, XVD, SYNC, HOLD, PANEL_B, PANEL_G, PANEL_R, XSYS_RST → ① TO(2/2)

FP-412 FLEXIBLE

CN5702 6P
PANEL_REV 1
PANEL_REV 2
N.C. 3
N.C. 4
GND 5
GND 6

LND007 SE_GND
S601 (PANEL REVERSE)

R5702 XX
R5703 XX

L5602 4.7uH
L5601 100uH
C5607 4.7u B
R5601 1800 1/10W
R5604 XX
C5603 0.015u B
C5608 XX
T5601 INVERTER TRANSFORMER
Q5604 CPH5504-TL-E OSC
Q5602 XX
C5606 12p 3kV SL

CN5601 10P
BL_HIGH 10
N.C. 9
N.C. 8
N.C. 7
N.C. 6
N.C. 5
N.C. 4
BL_LOW 3
LED 2
LED_GND 1

ND901 BACK LIGHT

R5614 XX
R5605 XX
Q5603 XX
D5602 XX
D5601 MA111-(K8).S0
D5605 XX
R5606 22k
C5605 0.1u B
R5607 470

IC5602 CURRENT DETECT
IC5602 TA75S393F-TE85R
R5602 100k
R5603 12k
C5604 0.1u B

LD5605 A
R5608 XX
D5603 XX
R5609 XX
D5604 XX

IC5601 TC7W53FU(TE12R)
R5612 10k
R5613 10k 18k (TYPE SH MODEL) (TYPE CA MODEL)
IC5601 BACKLIGHT BRIGHT SWITCH

DETIN
BL_ON
② TO(2/2)
Q5601 RN1104F(TPL3) BL SWITCH
DAC
LED

FP-414 FLEXIBLE is replaced as a block.
So that this PRINTED WIRING BOARD is omitted.

CN5705 4P
BL_GND 1
BL_GND 2
BL_VDD 3
BL_VDD 4

FP-414 FLEXIBLE
D902 (BACK LIGHT)

TO CONTROL SWITCH BLOCK (CF-2500) CN005 (THROUGH THE VP-117(CP-076) HARNESS) (PAGE 4-11)

CN5704 6P
XCS_LCD_DRIVER 1
LCD_COM/XDATA 2
OSD_SO 3
XOSD_SCK 4
DISP_LCD_VDD 5
DISP_BL 6

XCS, C/XD, SO, SCK

C5701 0.1u B
R5704 680k

IC5701 CHARACTOR DISPLAY DRIVER
IC5701 BU9735K-E2
OSC1, OSC2, VSS, VC, VLCD, VDD, SCK, SD
SEG16 SEG15 SEG14 SEG13 SEG12 SEG11 SEG18 SEG17 SEG10 SEG9 SEG8 SEG7 SEG6 SEG5 SEG4 SEG3
XCS C/XD COM1 COM2 COM3 COM4 SEG1 SEG2

CN5703 20P
COM1 1
COM2 2
SEG3 3
SEG4 4
SEG5 5
SEG6 6
SEG2 7
SEG7 8
SEG8 9
SEG9 10
SEG10 11
SEG1 12
SEG11 13
SEG12 14
SEG13 15
SEG14 16
SEG16 17
SEG15 18
COM3 19
COM4 20

LCD902 CHARACTER DISPLAY UNIT

COVER

For Schematic Diagram

• Refer to page 4-79 for printed wiring board.
• Refer to page 4-91 for waveforms.

PD-156 BOARD(2/2) (TYPE CA and SH MODEL)

DRIVER,TIMING GEN.(RGB/TG BLOCK)

XX MARK:NO MOUNT

TYPE SH :TRV738E/TRV740E:AEP,EE,NE,RU
TYPE CA :TRV840

LCD Type Check
By measuring resistor value between pin ⑥ and pin ⑩ (GND) of CN5502. the type of LCD can be discriminated.
2.2k:LCD type SH
6.8k:LCD type CA

Abbreviation
EE :East European Model
NE :North European Model
RU :Russian Model

*MARKED:MOUNT TABLE

	TYPE SH	TYPE CA
C5516	68p/50V CH	82p/50V
C5528	1u/20V TA	XX
C5530	0.01u B	XX
C5531	0.01u B	XX
D5503	1SS355TE-17	XX
FB5503	0uH	XX
IC5501	CXA3592R	RB5P003AM1
IC5502	LZ9FF474	CM7021L3-E
L5502	XX	10uH
L5503	6.8uH	8.2uH
Q5502	MGSF1P02LT	XX
Q5503	HN1B04FE-Y	XX
Q5504	UP0460100SO	XX
Q5505	DTC144EHT2L	XX
R5513	1M	XX
R5514	XX	0
R5515	0	XX
R5516	5.6k	10k
R5517	XX	120k
R5518	XX	0

	TYPE SH	TYPE CA
R5519	0	XX
R5520	XX	0
R5522	2.2k	6.8k
R5525	XX	0
R5528	XX	0
R5529	XX	0
R5530	XX	0
R5531	180k	XX
R5532	100k	XX
R5533	1M	XX
R5540	100k	XX
R5541	100k	XX
RB5502	1Mx4	XX
RB5503	10kx4	XX

IC5501 DRIVER

IC5502 Timing Generator

CN5502 10P

1	VB
2	XVD_OUT
3	VG
4	PANEL_COM
5	VR
6	PANEL_ID
7	C-SYNC/XHD
8	XHD_OUT
9	GND
10	GND

CPC (FOR ADJUSTMENT)

CN5501 24P

	TYPE SH MODEL	TYPE CA MODEL
24	VSHSV	VSH
23	VSHSV	VDD
22	GND	VSS
21	VB	VB
20	VG	VG
19	VR	VR
18	SPD	HCNT
17	CLD	MCLK
16	CTR	CLR
15	PSS2	OE
14	PSS1	SRT
13	RES	STBYB
12	CLS	VBC
11	VCOM	VCOM
10	EX2	RESET
9	PSG	STBYB
8	MO2	GSRT
7	MO1	GPCK
6	EX1	GRES
5	SPS	N.C.
4	VGLAC	VDD
3	VGL	VGL
2	GND	VSS
1	VGH	VGH

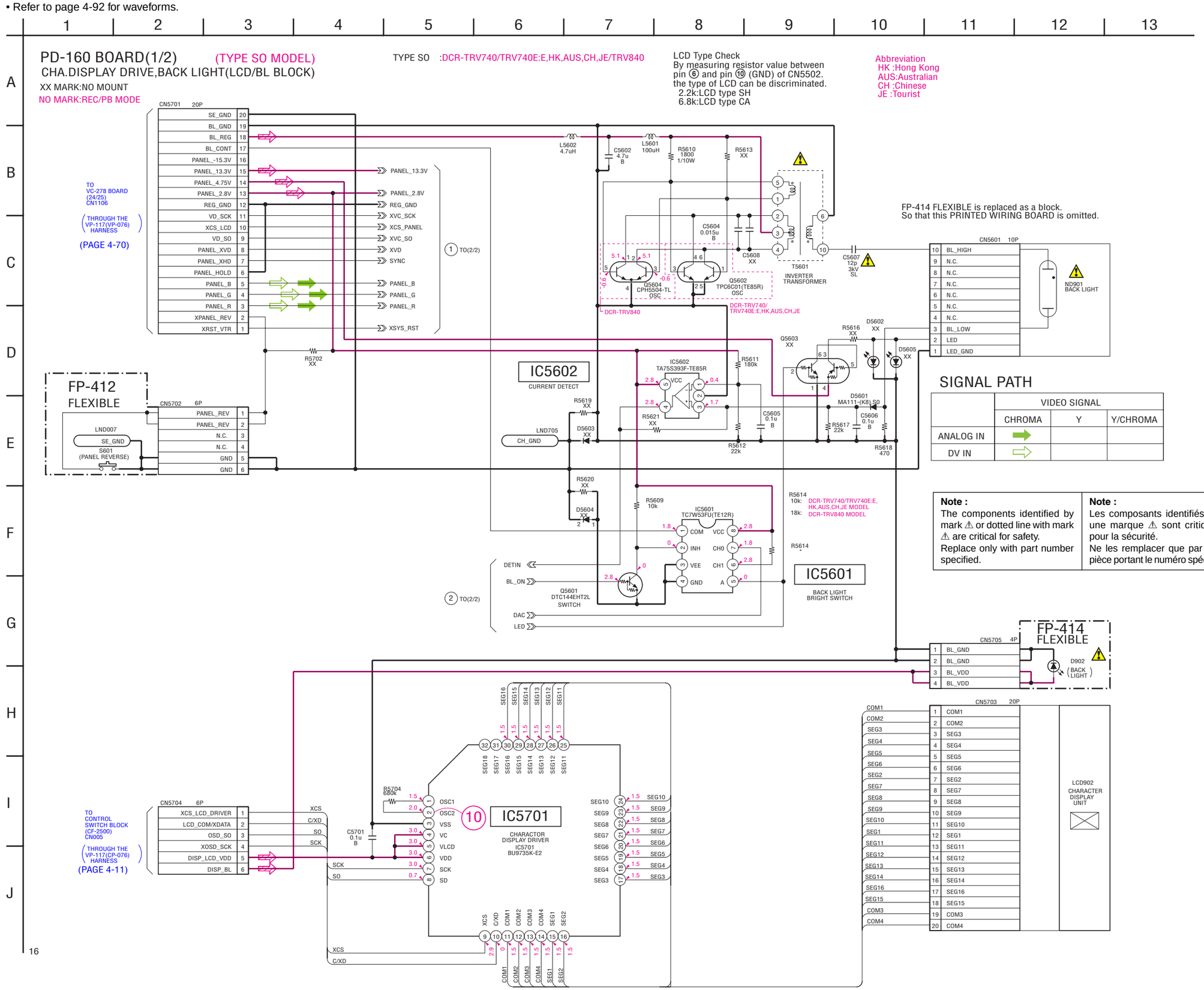
LCD901 2.5/3.5INCH LCD UNIT

2.5INCH LCD MODEL :DCR-TRV738E/TRV740E: AEP,EE,NE,RU
3.5INCH LCD MODEL :DCR-TRV840

SIGNAL PATH

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC	⇨		
PB	⇦		

For Schematic Diagram
- Refer to page 4-83 for printed wiring board.
- Refer to page 4-92 for waveforms.



For Schematic Diagram

• Refer to page 4-83 for printed wiring board.
• Refer to page 4-92 for waveforms.

PD-160 BOARD(2/2) (TYPE SO MODEL)

LCD DRIVE,TG(RGB/TG BLOCK)

XX MARK:NO MOUNT

NO MARK:REC/PB MODE

TYPE SO :DCR-TRV740/TRV740E:E,HK,AUS,CH,JE/TRV840

LCD Type Check
By measuring resistor value between pin ⑥ and pin ⑩ (GND) of CN5502. the type of LCD can be discriminated.
2.2k:LCD type SH
6.8k:LCD type CA

IC5501
DRIVER
IC5501
CXA3289AR-T4

IC5502
Timing Generator
IC5502

CN5502 10P
CPC (FOR ADJUSTMENT)

CN5501 24P
LCD901
2.5/3.5INCH LCD UNIT

2.5INCH LCD MODEL :DCR-TRV740/TRV740E:E,HK,AUS,CH,JE
3.5INCH LCD MODEL :DCR-TRV840

Abbreviation
HK :Hong Kong
AUS:Australian
CH :Chinese
JE :Tourist

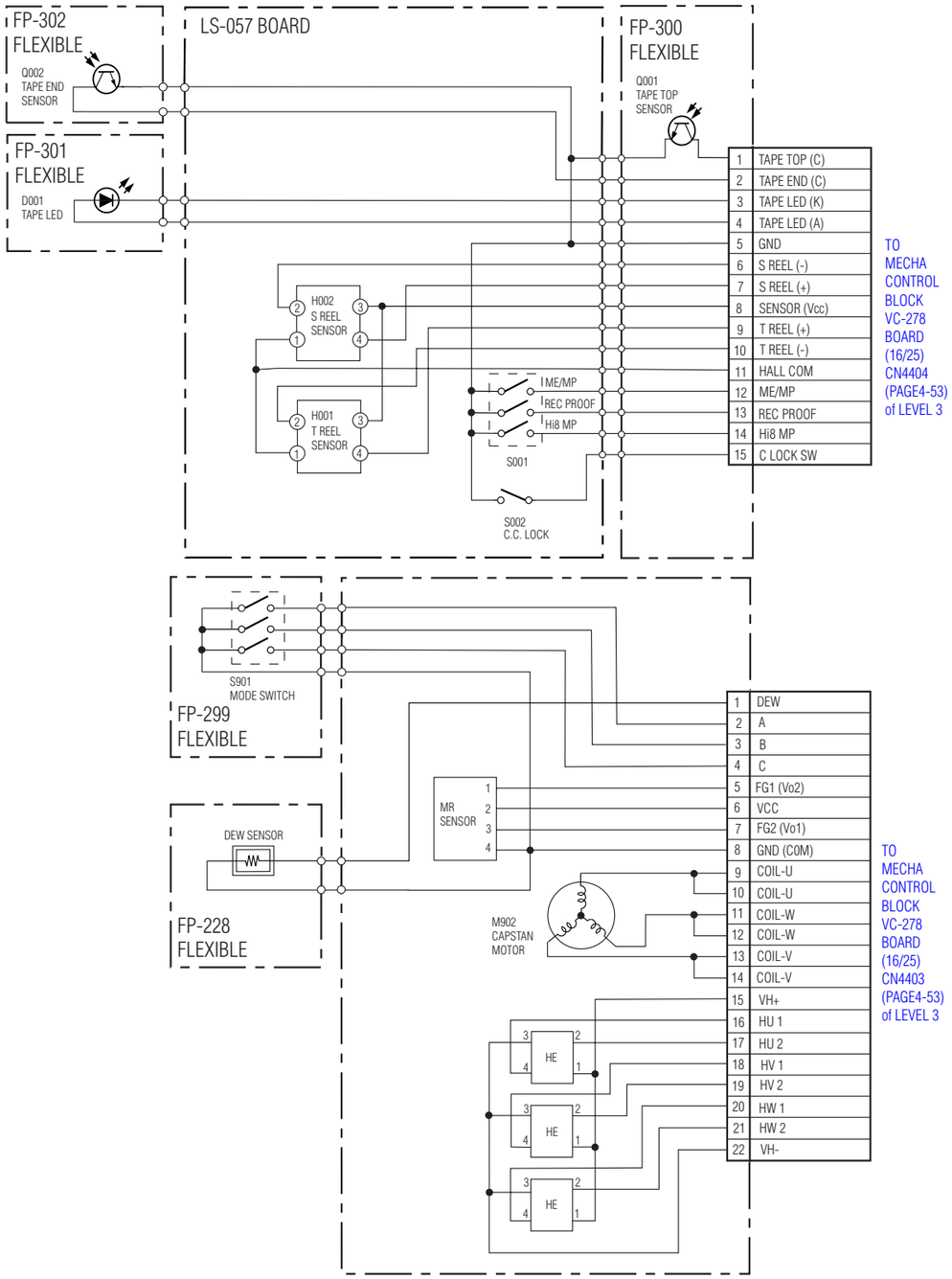
*MARKED:MOUNT TABLE

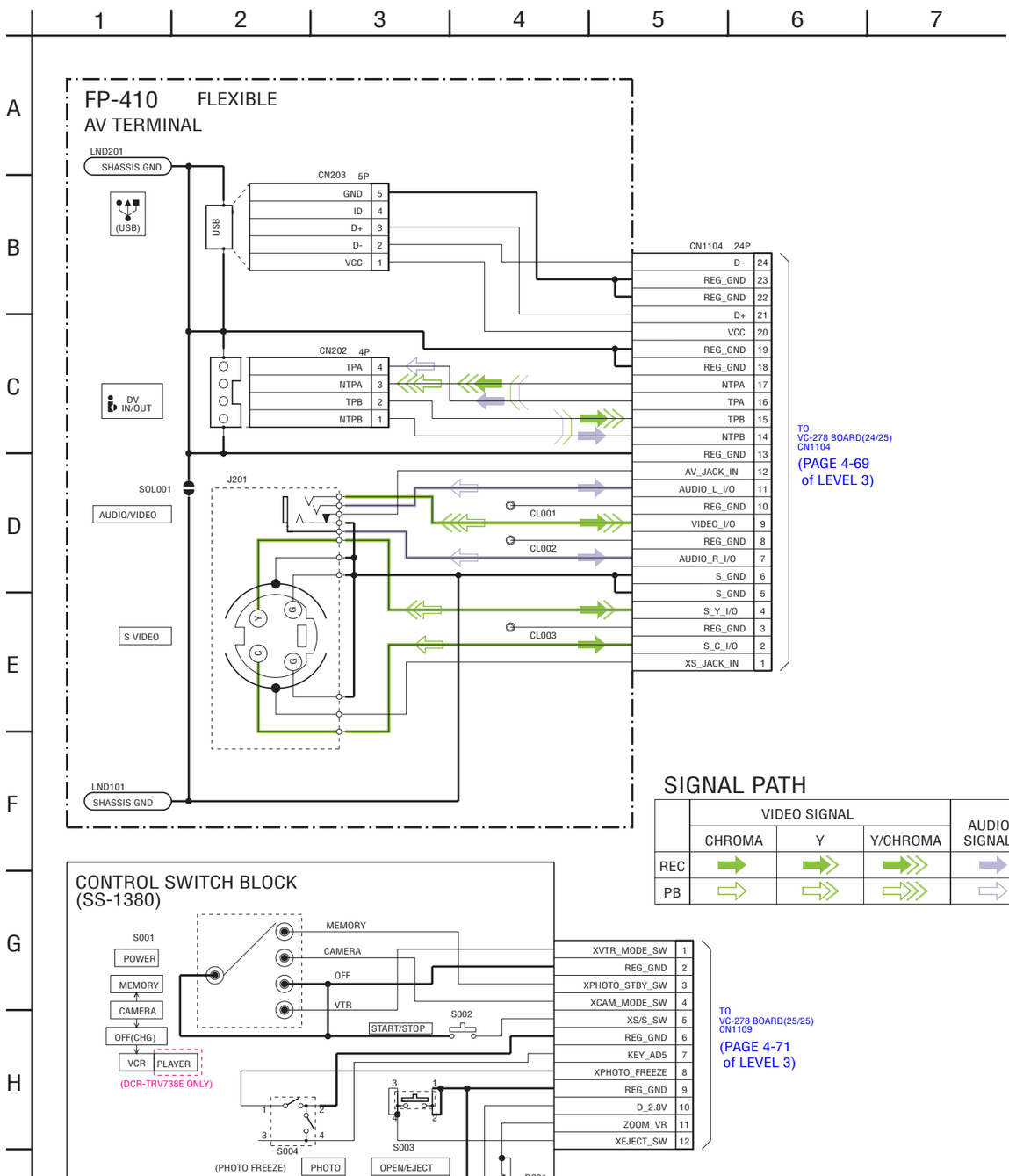
	DCR-TRV740/TRV740E:E,HK,AUS,CH,JE	DCR-TRV840
C5516	82p/50V	100p/50V
IC5502	CXD3512R-T4	CXD3516R-T4
L5505	27uH	6.8uH
Q5505	MGSF1PO2LT	NDS356AP
R5503	100k	82k
R5522	22k	47k

SIGNAL PATH

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
ANALOG IN	▶		
DV IN	▷		

2.5INCH LCD MODEL :DCR-TRV740/TRV740E:E,HK,AUS,CH,JE
3.5INCH LCD MODEL :DCR-TRV840





SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	→	→	→»	→
PB	⇨	⇨	⇨»	⇨

Schematic diagram of the VC-278 board are not shown.
Pages from 4-23 to 4-72 are not shown.

COVER

4-3. PRINTED WIRING BOARDS

Link

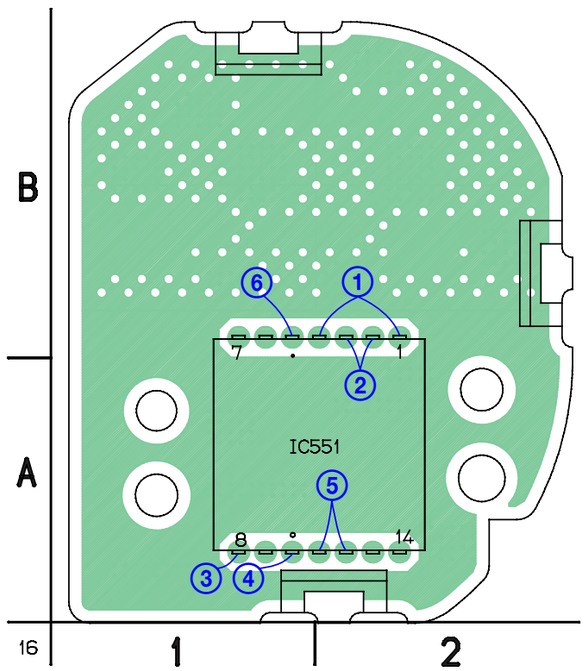
CD-358 BOARD	PD-156 BOARD (SIDE B)
LB-076 BOARD	PD-160 BOARD (SIDE A)
SI-032 BOARD	PD-160 BOARD (SIDE B)
FP-411 FLEXIBLE BOARD	FP-412 FLEXIBLE BOARD
LS-057, FP-228, FP-299, FP-300, FP-302, FP-301 FLEXIBLE BOARDS	
FP-410 FLEXIBLE BOARD	
PD-156 BOARD (SIDE A)	

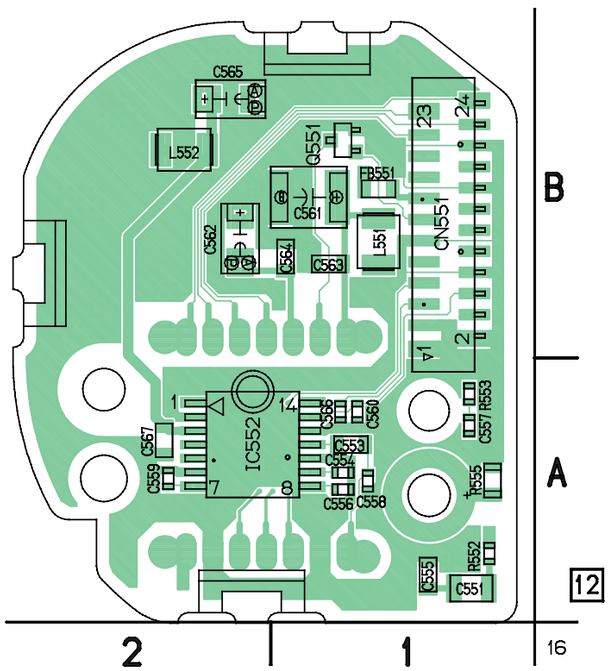
COMMON NOTE FOR PRINTED WIRING BOARDS		WAVEFORMS
MOUNTED PARTS LOCATION	CIRCUIT BOARDS LOCATION	FLEXIBLE BOARDS LOCATION

4-3. PRINTED WIRING BOARDS

CD-358 (CCD IMAGER) PRINTED WIRING BOARD

• : Uses unleaded solder.





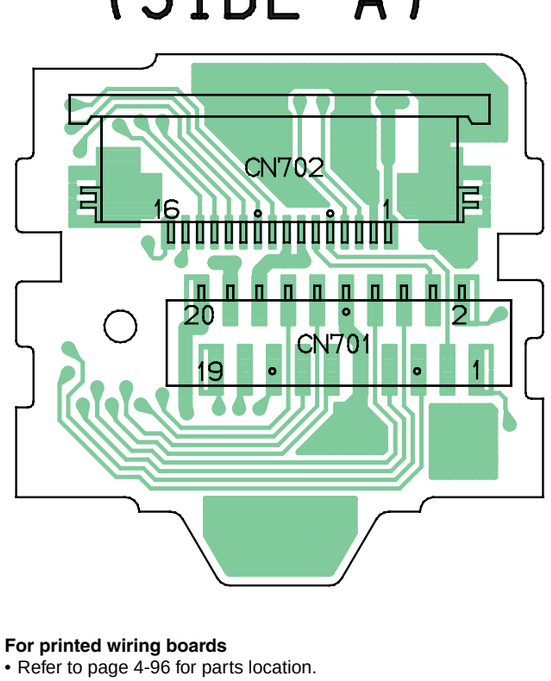
For printed wiring boards

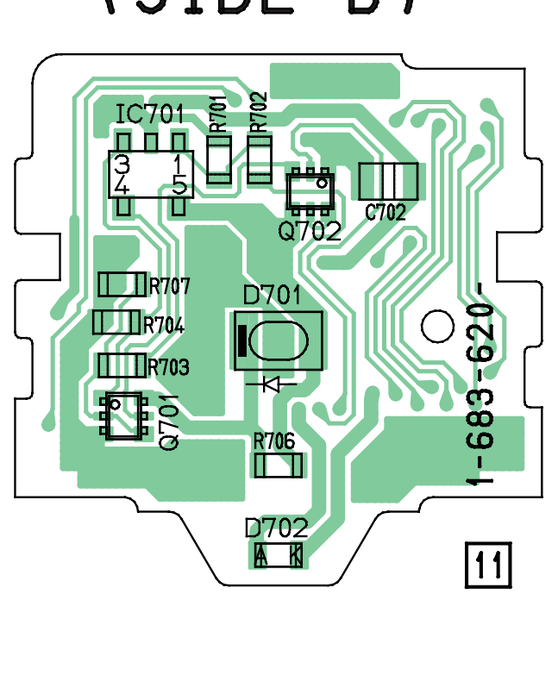
- Refer to page 4-96 for parts location.
- This board is eight-layer print board. However, the patterns of layers two and seven have not been included in the diagram.

There are a few cases that the part printed on this diagram isn't mounted in this model.

LB-076 (EVF, BACK LIGHT) PRINTED WIRING BOARD

• : Uses unleaded solder.





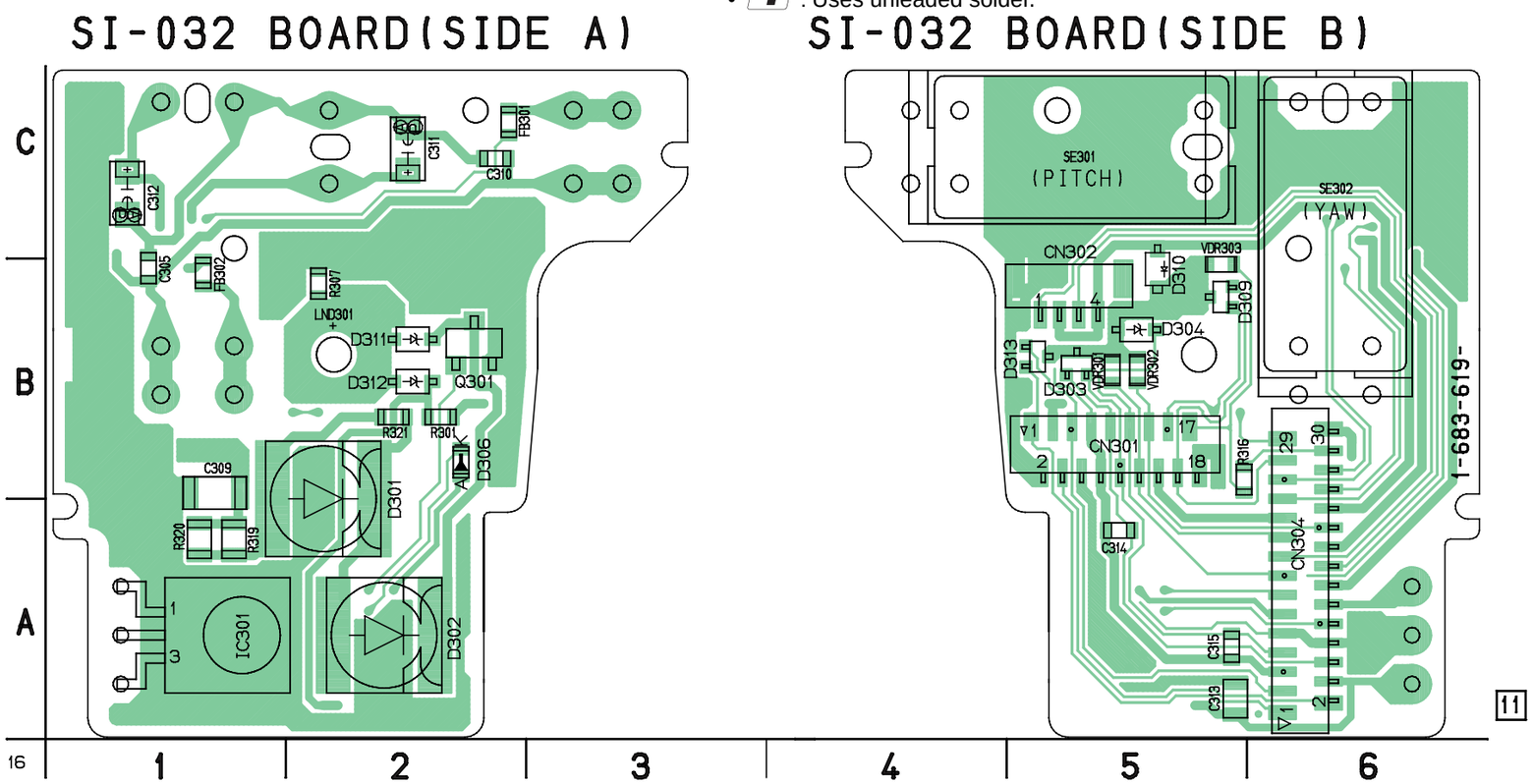
For printed wiring boards

- Refer to page 4-96 for parts location.
- This board is eight-layer print board. However, the patterns of layers two and seven have not been included in the diagram.

There are a few cases that the part printed on this diagram isn't mounted in this model.

SI-032 (STEADY SHOT, LASER LINK) PRINTED WIRING BOARD

• : Uses unleaded solder.

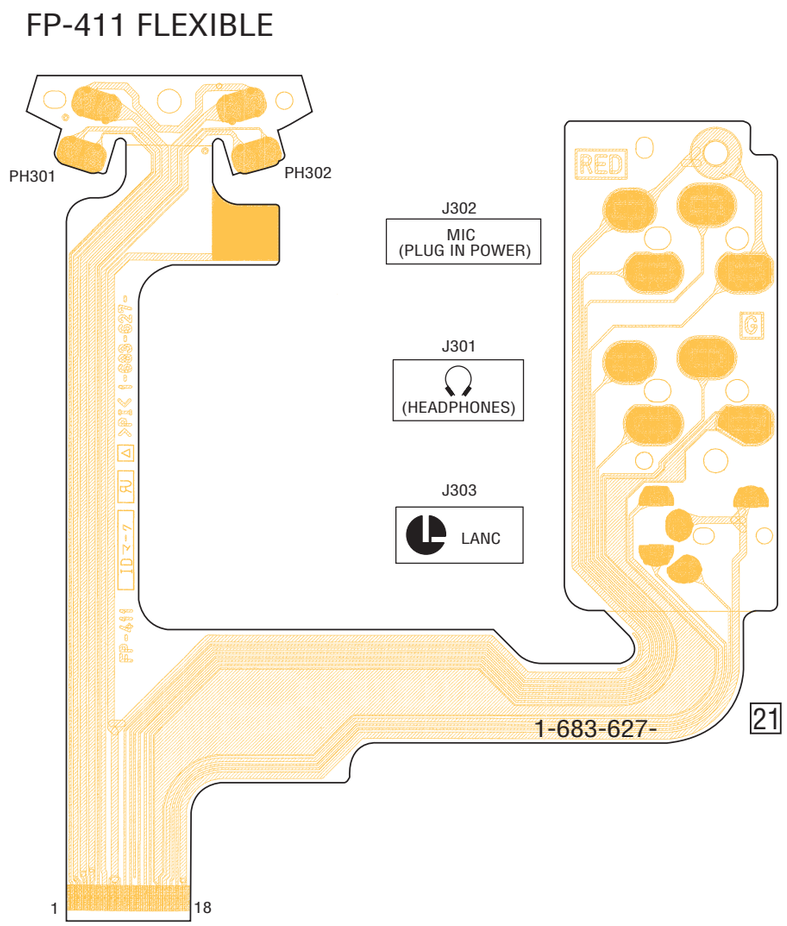


For printed wiring boards

- Refer to page 4-96 for parts location.
- This board is six-layer print board. However, the patterns of layers two and five have not been included in the diagram.

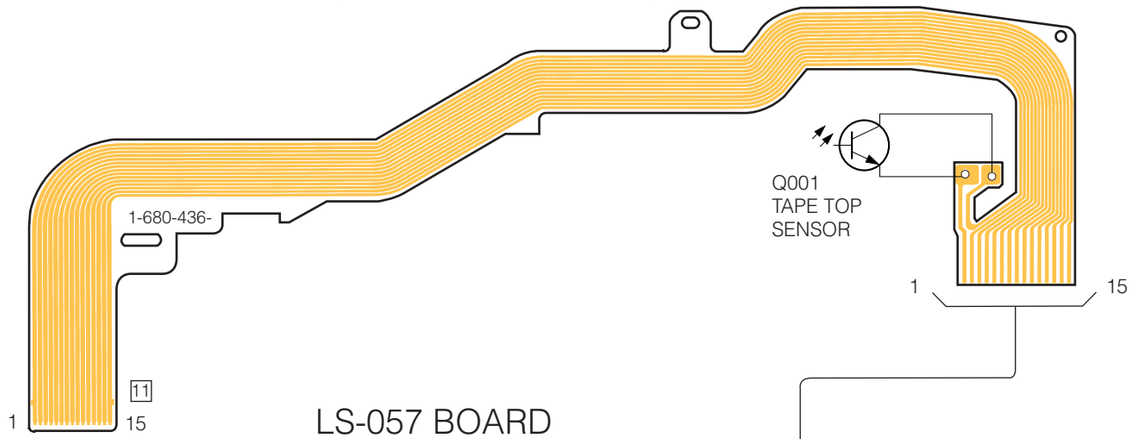
There are a few cases that the part printed on this diagram isn't mounted in this model.

FP-411 FLEXIBLE BOARD

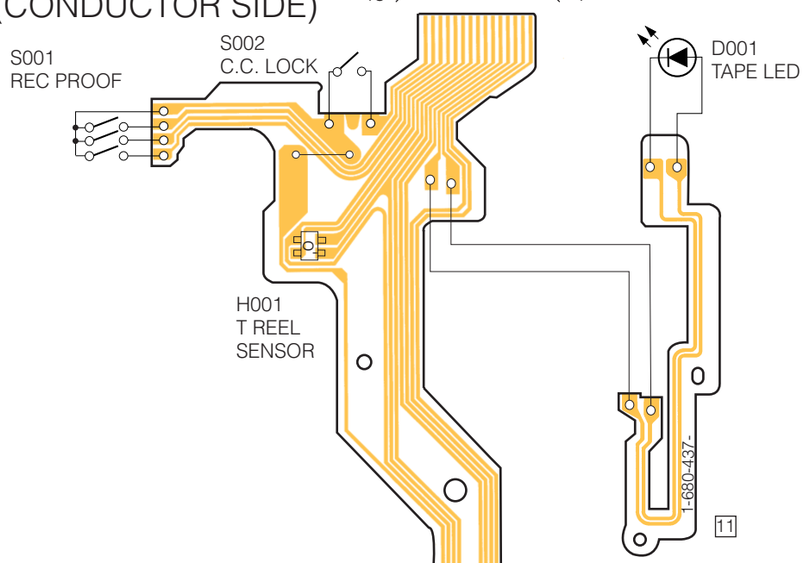


LS-057 (S/T REEL SENSOR), FP-228 (DEW SENSOR), FP-299 (MODE SWITCH), FP-300 (TAPE TOP), FP-302 (TAPE END), FP-301 (TAPE LED) FLEXIBLE BOARDS

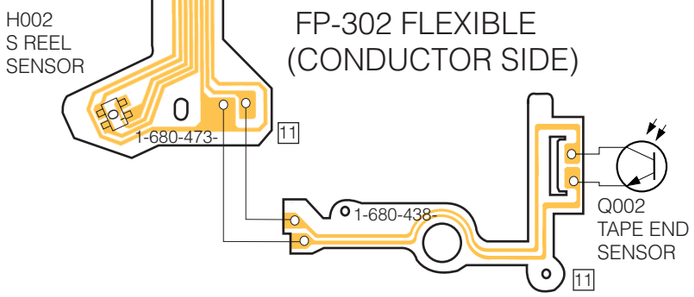
FP-300 FLEXIBLE (COMPONENT SIDE)



LS-057 BOARD
(CONDUCTOR SIDE)



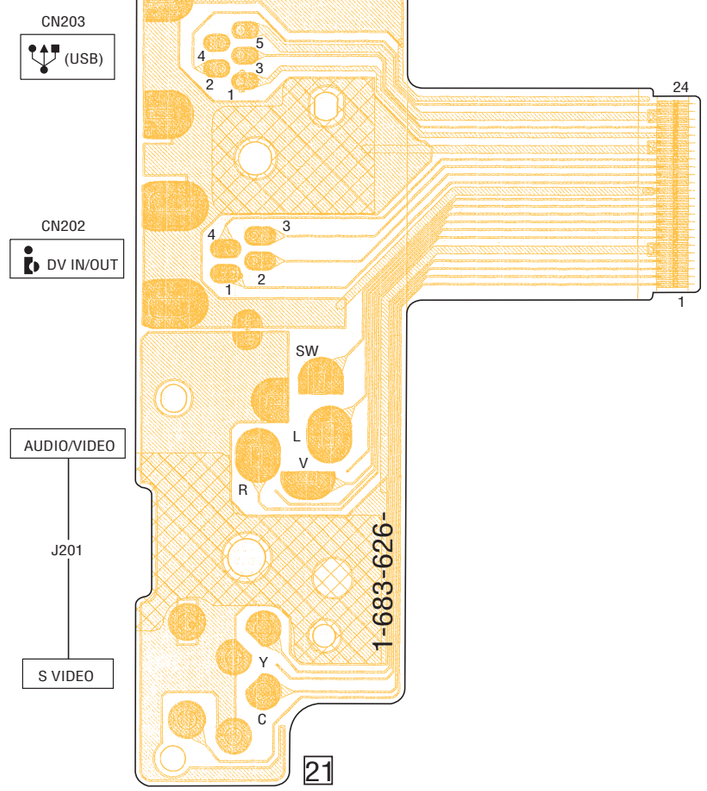
FP-301 FLEXIBLE
(CONDUCTOR SIDE)



FP-302 FLEXIBLE
(CONDUCTOR SIDE)

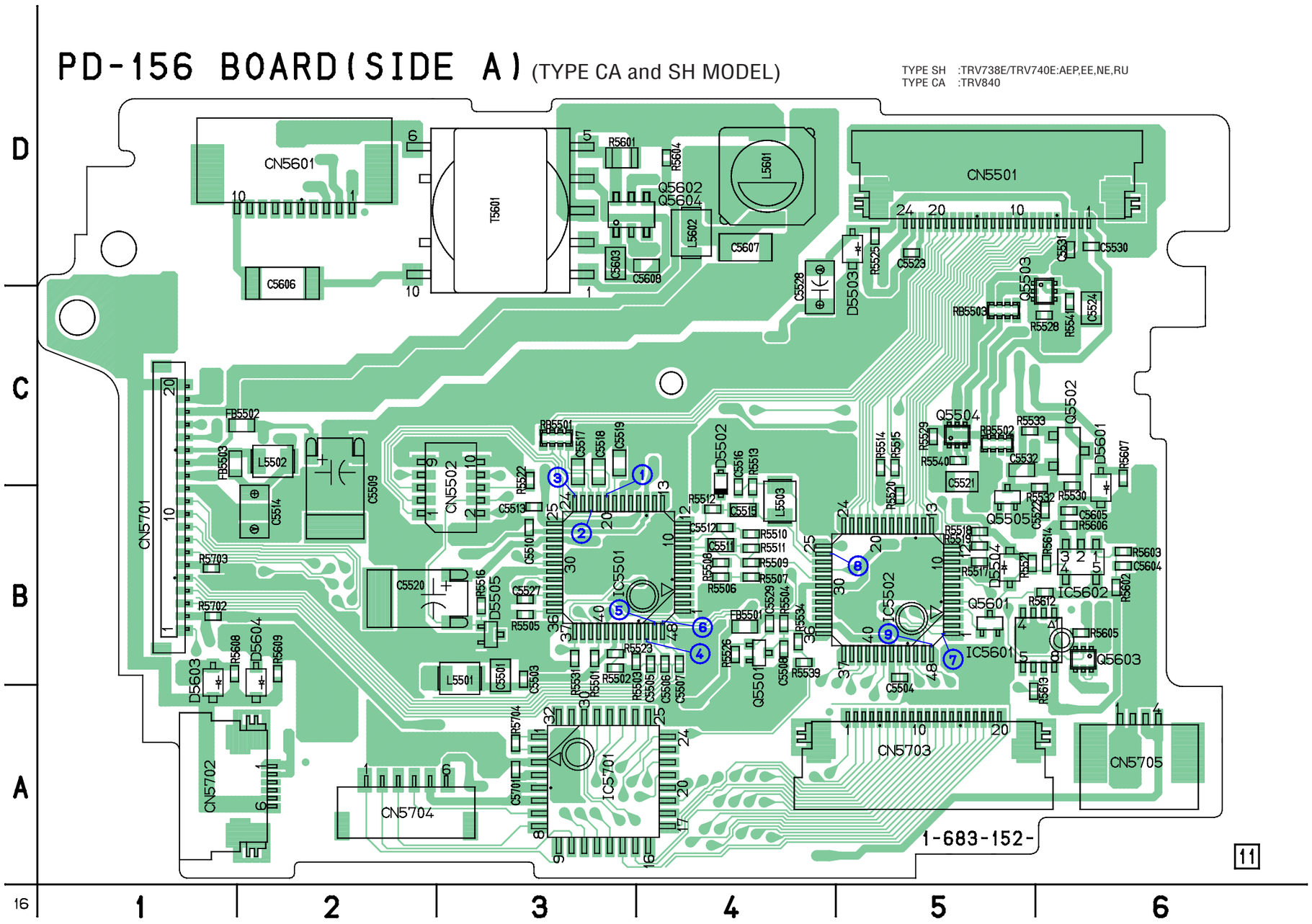
FP-410 FLEXIBLE BOARD

FP-410 FLEXIBLE



PD-156 (LCD DRIVER, BACKLIGHT, DRIVER, TIMING GENERATOR) PRINTED WIRING BOARD

• : Uses unleaded solder.



For printed wiring boards

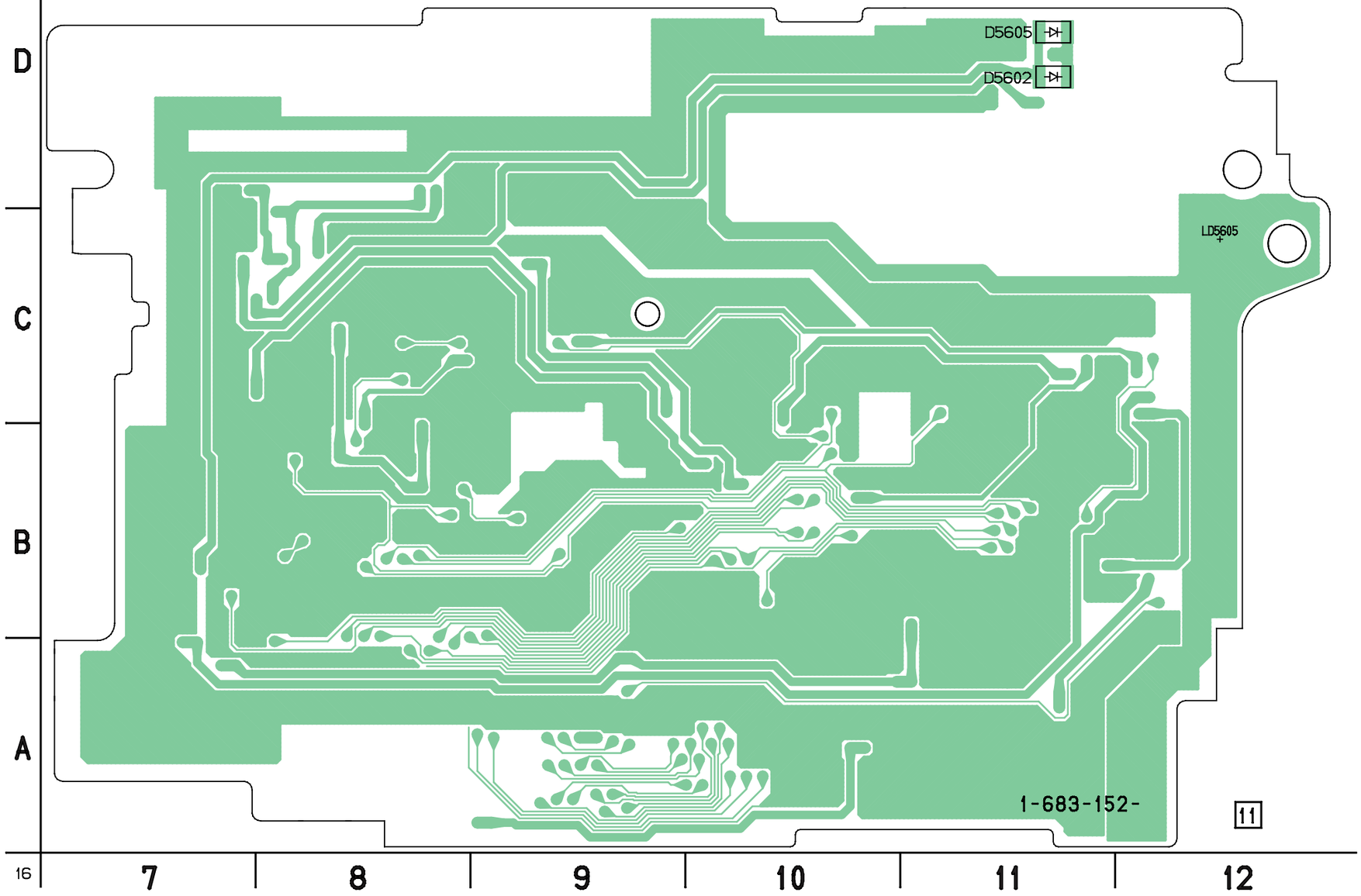
- Refer to page 4-96 for parts location.
- This board is six-layer print board. However, the patterns of layers two and five have not been included in the diagram.

There are a few cases that the part printed on this diagram isn't mounted in this model.

• : Uses unleaded solder.

PD-156 BOARD(SIDE B) (TYPE CA and SH MODEL)

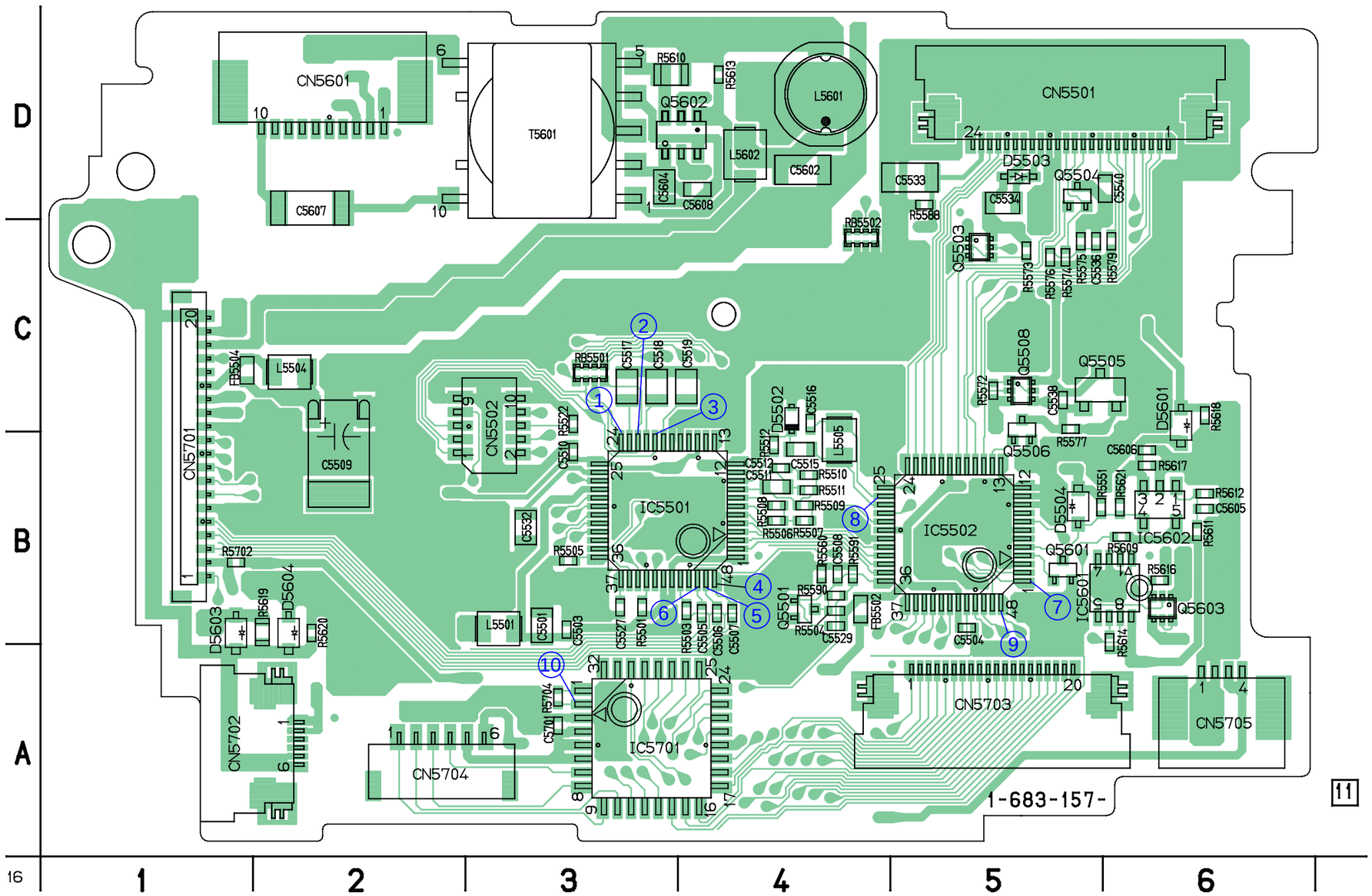
TYPE SH :TRV738E/TRV740E:AEP,EE,NE,RU
TYPE CA :TRV840



PD-160 (CHA, DISPLAY DRIVE, BACK LIGHT, LCD DRIVE, TG) PRINTED WIRING BOARD

• : Uses unleaded solder.

TYPE SO :DCR-TRV740/TRV740E:E,HK,AUS,CH,JE/TRV840



For printed wiring boards

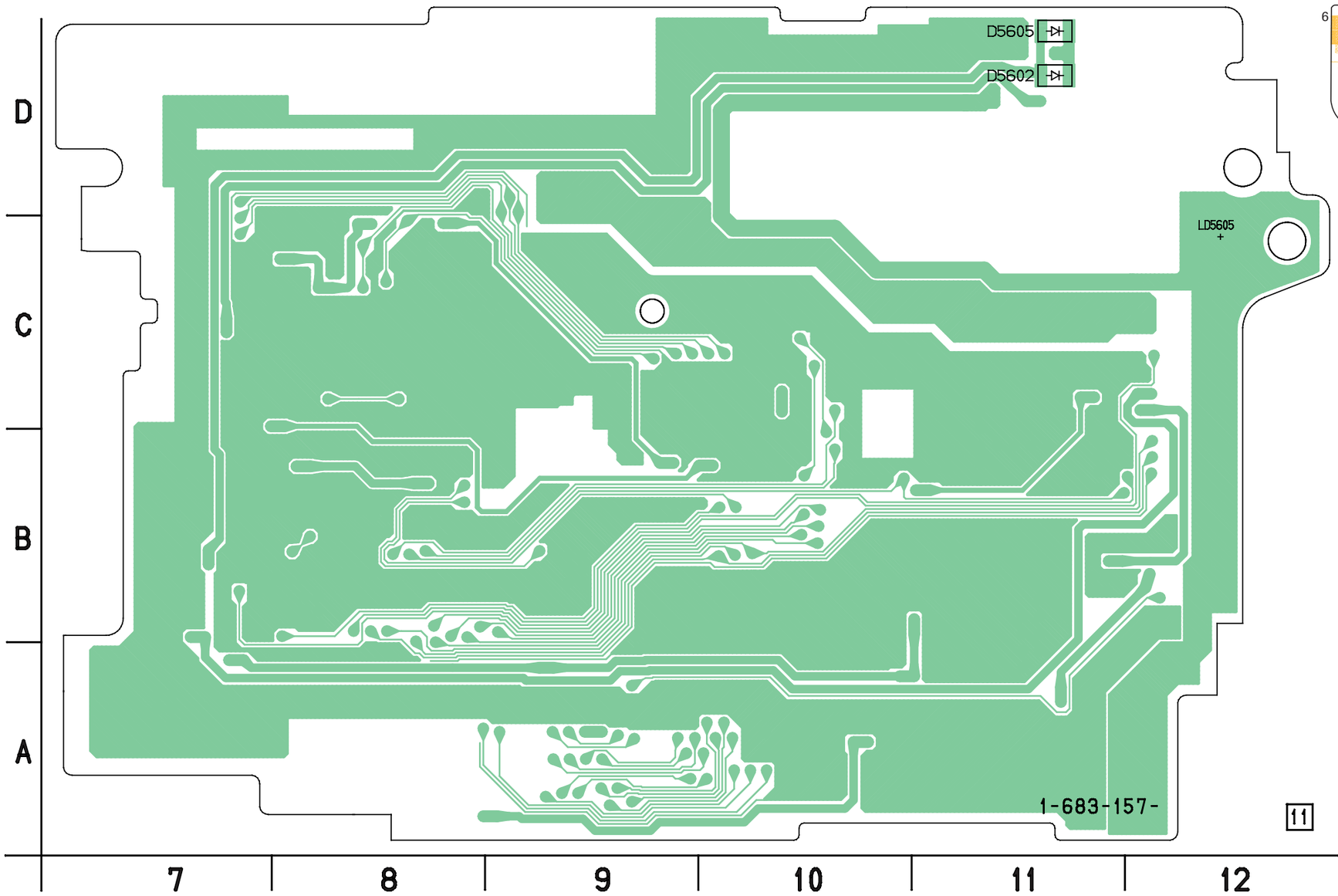
- Refer to page 4-96 for parts location.
- This board is six-layer print board. However, the patterns of layers two and five have not been included in the diagram.

There are a few cases that the part printed on this diagram isn't mounted in this model.

• : Uses unleaded solder.

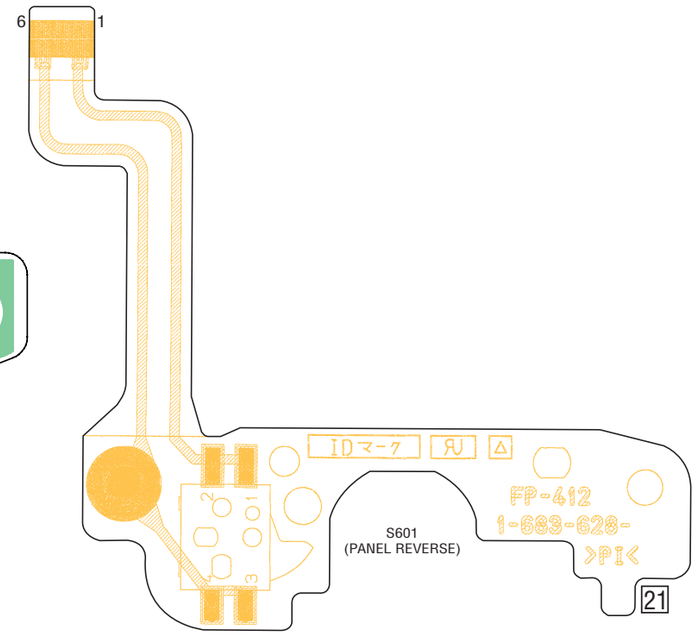
PD-160 BOARD(SIDE B) (TYPE SO MODEL)

TYPE SO :DCR-TRV740/TRV740E:E,HK,AUS,CH,JE/TRV840



FP-412 FLEXIBLE BOARD

FP-412 FLEXIBLE

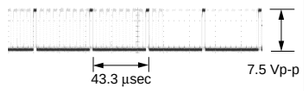


Printed wiring board of the VC-278 board are not shown.
Pages from 4-87 to 4-90 are not shown.

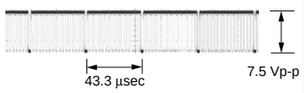
4-4. WAVEFORMS

CD-358 BOARD CAMERA REC

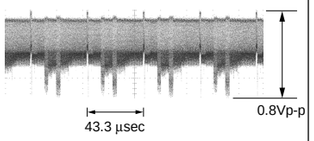
① IC551 ①,④



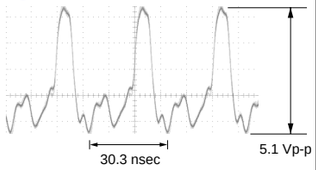
② IC551 ②,③



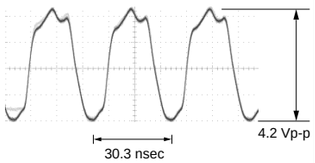
③ IC551 ⑧



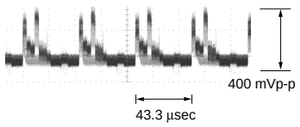
④ IC551 ⑩



⑤ IC551 ⑪,⑫

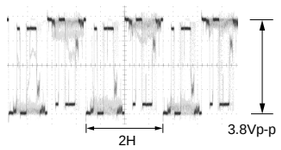


⑥ IC552 ⑤

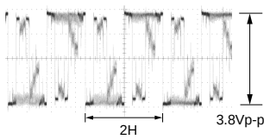


PD-156 BOARD

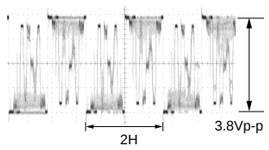
① IC5501 ⑳



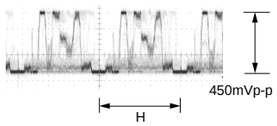
② IC5501 ㉒



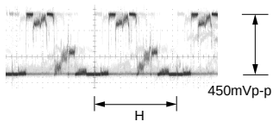
③ IC5501 ㉔



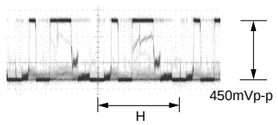
④ IC5501 ㊻



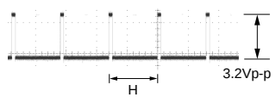
⑤ IC5501 ㊼



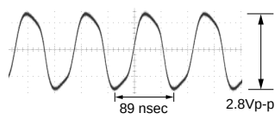
⑥ IC5501 ㊽



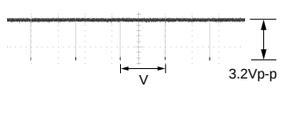
⑦ IC5502 ①



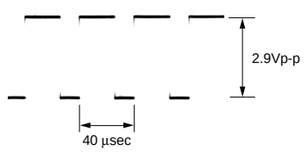
⑧ IC5502 ㉖



⑨ IC5502 ㊽

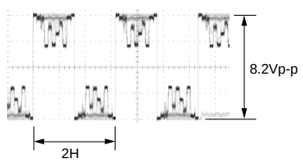


⑩ IC5701 ②

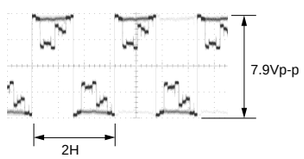


PD-160 BOARD

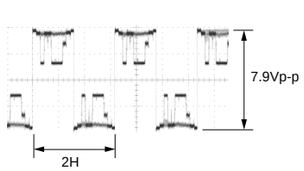
① IC5501 ㉔ LCD



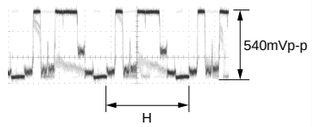
② IC5501 ㉒ LCD



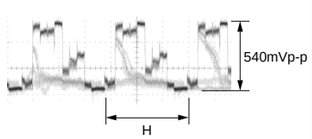
③ IC5501 ⑳ LCD



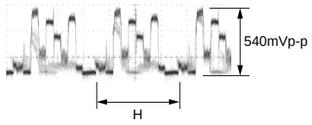
④ IC5501 ㊽ LCD



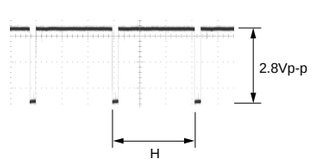
⑤ IC5501 ㊼ LCD



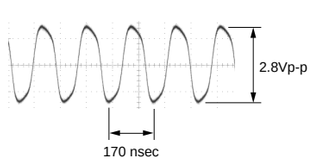
⑥ IC5501 ㊻ LCD



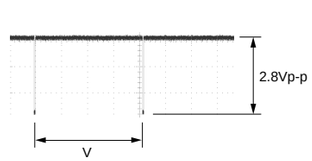
⑦ IC5502 ① LCD



⑧ IC5502 ㉖ LCD



⑨ IC5502 ㊽ LCD



Waveforms of the VC-278 board are not shown.
Pages from 4-93 to 4-95 are not shown.

4-5. MOUNTED PARTS LOCATION

no mark : side A
* mark : side B

CD-358 BOARD

*	C551	A-1
*	C553	A-1
*	C554	A-1
*	C555	A-1
*	C556	A-1
*	C557	A-1
*	C558	A-1
*	C559	A-2
*	C560	A-1
*	C561	B-1
*	C562	B-2
*	C563	B-1
*	C564	B-1
*	C565	B-2
*	C566	A-1
*	C567	A-2
*	CN551	B-1
*	FB551	B-1
	IC551	A-1
*	IC552	A-2
*	L551	B-1
*	L552	B-2
*	Q551	B-1
*	R552	A-1
*	R553	A-1
*	R555	A-1

SI-032 BOARD

	C305	B-1
	C309	B-1
	C310	C-2
	C311	C-2
	C312	C-1
*	C313	A-5
*	C314	A-5
*	C315	A-5
*	CN301	B-5
*	CN302	B-5
*	CN304	A-6
	D301	A-2
	D302	A-2
*	D303	B-5
*	D304	B-5
	D306	B-2
*	D309	B-5
*	D310	B-5
	D311	B-2
	D312	B-2
*	D313	B-5
	FB301	C-2
	FB302	B-1
	IC301	A-1
	Q301	B-2
	R301	B-2
	R307	B-2
*	R316	B-5
	R319	A-1
	R320	A-1
	R321	B-2
*	SE301	C-5
*	SE302	C-6
*	VDR301	B-5
*	VDR302	B-5
*	VDR303	B-5

PD-156 BOARD

	C5501	B-3
	C5503	B-3
	C5504	B-5
	C5505	B-4
	C5506	B-4
	C5507	B-4
	C5508	B-4
	C5509	B-2
	C5510	B-3
	C5511	B-4
	C5512	B-4
	C5513	B-3
	C5514	B-2
	C5515	B-4
	C5516	B-4
	C5517	C-3
	C5518	C-3
	C5519	C-3
	C5520	B-2
	C5521	C-5
	C5522	B-6
	C5523	D-5
	C5524	C-6
	C5527	B-3
	C5528	D-4
	C5529	B-4
	C5530	D-6
	C5531	D-6
	C5532	C-5
	C5603	D-3
	C5604	B-6
	C5605	B-6
	C5606	D-2
	C5607	D-4
	C5608	D-4
	C5701	A-3
	CN5501	D-5
	CN5502	B-3
	CN5601	D-2
	CN5701	B-1
	CN5702	A-1
	CN5703	A-5
	CN5704	A-2
	CN5705	A-6
	D5502	B-4
	D5503	D-5
	D5504	B-5
	D5505	B-3
	D5601	C-6
*	D5602	D-11
	D5603	B-1
	D5604	B-2
*	D5605	D-11
	FB5501	B-4
	FB5502	C-2
	FB5503	C-1
	IC5501	B-3
	IC5502	B-5
	IC5601	B-5
	IC5602	B-6
	IC5701	A-3
	L5501	B-3
	L5502	C-2
	L5503	B-4
	L5601	D-4
	L5602	D-4
	Q5501	B-4
	Q5502	C-6
	Q5503	C-6
	Q5504	C-5
	Q5505	B-5
	Q5601	B-5
	Q5602	D-4
	Q5603	B-6
	Q5604	D-4
	R5501	B-3
	R5502	B-3
	R5503	B-4
	R5504	B-4
	R5505	B-3
	R5506	B-4
	R5507	B-4
	R5508	B-4
	R5509	B-4
	R5510	B-4
	R5511	B-4
	R5512	B-4
	R5513	B-4
	R5514	C-5
	R5515	C-5
	R5516	B-3
	R5517	B-5
	R5518	B-5
	R5519	B-5
	R5520	B-5
	R5521	B-5
	R5522	C-3
	R5523	B-3
	R5525	D-5
	R5526	B-4
	R5528	C-6
	R5529	C-5
	R5530	B-6
	R5531	B-3
	R5532	B-6
	R5533	C-5
	R5534	B-4
	R5539	B-4
	R5540	C-5
	R5541	C-6
	R5601	D-3
	R5602	B-6
	R5603	B-6
	R5604	D-4
	R5605	B-6
	R5606	B-6
	R5607	C-6
	R5608	B-1
	R5609	B-2
	R5612	B-6
	R5613	A-6
	R5614	B-6
	R5702	B-1
	R5703	B-1
	R5704	A-3
	RB5501	C-3
	RB5502	C-5
	RB5503	C-5
	T5601	D-3

PD-160 BOARD

	C5501	B-3
	C5503	B-3
	C5504	B-5
	C5505	B-4
	C5506	B-4
	C5507	B-4
	C5508	B-4
	C5509	B-2
	C5510	B-3
	C5511	B-4
	C5512	B-4
	C5515	B-4
	C5516	C-4
	C5517	C-3
	C5518	C-3
	C5519	C-4
	C5527	B-3
	C5529	B-4
	C5532	B-3
	C5533	D-5
	C5534	D-5
	C5536	C-5
	C5538	C-5
	C5540	D-6
	C5602	D-4
	C5604	D-3
	C5605	B-6
	C5606	B-6
	C5607	D-2
	C5608	D-4
	C5701	A-3
	CN5501	D-5
	CN5502	C-3
	CN5601	D-2
	CN5701	B-1
	CN5702	A-1
	CN5703	A-5
	CN5704	A-2
	CN5705	A-6
	D5502	C-4
	D5503	D-5
	D5504	B-5
	D5601	C-6
*	D5602	D-11
	D5603	B-1
	D5604	B-2
*	D5605	D-11
	FB5502	B-4
	FB5504	C-1
	IC5501	B-3
	IC5502	B-5
	IC5601	B-6
	IC5602	B-6
	IC5701	A-3
	L5501	B-3
	L5504	C-2
	L5505	B-4
	L5601	D-4
	L5602	D-4
	Q5501	B-4
	Q5503	C-5
	Q5504	D-5
	Q5505	C-5
	Q5506	B-5
	Q5508	C-5
	Q5601	B-5
	Q5602	D-3
	Q5603	B-6
	R5501	B-3
	R5503	B-4
	R5504	B-4
	R5505	B-3
	R5506	B-4
	R5507	B-4
	R5508	B-4
	R5509	B-4
	R5510	B-4
	R5511	B-4
	R5512	B-4
	R5522	C-3
	R5551	B-6
	R5560	B-4
	R5572	C-5
	R5573	C-5
	R5574	C-5
	R5575	C-5
	R5576	C-5
	R5577	B-5
	R5579	C-6
	R5588	D-5
	R5590	B-4
	R5591	B-4
	R5609	B-6
	R5610	D-3
	R5611	B-6
	R5612	B-6
	R5613	D-4
	R5614	B-6
	R5616	B-6
	R5617	B-6
	R5618	C-6
	R5619	B-2
	R5620	B-2
	R5621	B-6
	R5702	B-1
	R5704	A-3
	RB5501	C-3
	RB5502	C-4
	T5601	D-3

Mounted parts location of the VC-278 board is not shown.
Pages from 4-97 to 4-98 are not shown.

COVER

SECTION 5
ADJUSTMENTS

1. Adjusting items when replacing main parts and boards.

When replacing main parts, adjust the items indicated by ● in the following table.

Adjustment Section	Adjustment	Replaced parts: Block replacement: Lens device	LCD block ND901 (Fluorescent tube)	LCD block LCD901 (LCD panel)	Mechanism deck *1	Mechanism deck M901 (Drum assy.) *1	Mechanism deck M902 (Capstan motor)	Mechanism deck LS chassis assy	Parts replacement: CD-358 board IC551 (CCD imager)	CD-358 board IC552 (S/H)	PD-156/160 board IC5501 (RGB driver (LCD))*2 *3	PD-156/160 board IC5502 (Timing generator (LCD))*2 *3	PD-156/160 board Q5602/5604, T5601 (Inverter)*2 *3	SI-032 board SE301,302 (PITCH,YAW sensor)	VC-278 board IC1501, X1501 (Timing generator)	VC-278 board IC1502 (AGC, A/D conv.)	VC-278 board IC2201 (Hi8/Std8 Y/C process)	VC-278 board IC3103 (REC/PB AMP)	VC-278 board IC3101 (EQ, A/D conv. PLL)	VC-278 board IC3701 (VIDEO IN/OUT)	VC-278 board IC3301 (DV signal process)	VC-278 board IC2291 (EVR)	VC-278 board IC5701 (AUDIO IN/OUT, AFM)	VC-278 board IC7001 (LCD driver (EVF))	VC-278 board IC7002 (Timing generator (EVF))
Initialization of 8, A, B, C, D, E, F, 1B, 1C, 1E, 1F page data	Initialization of A, D page data																								
	Initialization of B, 1B page data																								
	Initialization of 8, C, 1C page data																								
	Initialization of E, F, 1E, 1F page data																								
Camera	HALL adj.	●																							
	Flange back adj.	●							●																
	Mechanical shutter adj.	●																							
	Black defective CCD adj.								●																
	Color reproduction adj.								●	●						●									
	AWB & LV standard data input								●	●						●									
	Auto white balance adj.								●	●						●									
	Steady shot check													●											
EVF	VCO adj.																							●	●
	RGB AMP adj.																							●	
	Contrast adj.																					●		●	
LCD	VCO adj.										●	●													
	PSIG gray adj. *3										●														
	RGB AMP adj.										●														
	Black limit adj. *3										●														
	Contrast adj.										●											●			
	COM AMP adj.*2, Center level adj.*3										●														
	V-COM adj.			●							●														
	White balance adj.		●	●							●		●												
System control	Serial No. input																								
Servo & RF	REEL FG adj.				●			●																	
	Switching position adj.				●	●																			
	AGC center level adj.				●	●													●	●					
	APC & AEQ adj.				●	●													●	●					
	PLL fo & LPF fo adj.				●	●													●	●					
	Hi8/Std8 switching position adj.				●	●																			
	CAP FG duty adj.				●		●																●		
Video	54MHz/66MHz origin oscillation adj.														●								●		
	S VIDEO OUT Y level adj.																				●	●			
	S VIDEO OUT chroma level adj.																				●	●			
	Hi8/Std8 Y/C output level setting																●								
	Hi8/Std8 AFC fo adj.																●						●		
Audio	Hi8/Std8 AFM BPF fo adj.																						●	●	
	Hi8/Std8 AFM 1.5MHz deviation adj.																						●	●	
	Hi8/Std8 AFM 1.7MHz deviation adj.																						●	●	
Mechanism	Tape path adj.				●	●	●	●																	

Table. 5-1-1 (1).

Adjustment Section	Adjustment	Board replacement: SI-032 board (COMPLETE)	Board replacement: PD-156/160 board (COMPLETE) *2 *3	Board replacement: VC-278 board (COMPLETE)	EEPROM replacement: VC-278 board IC4502 (EEPROM)	EEPROM replacement: VC-278 board IC4903 (EEPROM) *4	Supporting RadarW
Initialization of 8, A, B, C, D, E, F, 1B, 1C, 1E, 1F page data	Initialization of A, D page data			●		●	
	Initialization of B, 1B page data			●		●	
	Initialization of 8, C, 1C page data			●	●		
	Initialization of E, F, 1E, 1F page data			●	●		
Camera	HALL adj.			●	●		●
	Flange back adj.			●	●		●
	Mechanical shutter adj.			●	●		●
	Black defective CCD adj.			●	●		●
	Color reproduction adj.			●	●		
	AWB & LV standard data input			●	●		●
	Auto white balance adj.			●	●		●
	Steady shot check	●		●	●		●
EVF	VCO adj.			●	●		
	RGB AMP adj.			●	●		
	Contrast adj.			●	●		
LCD	VCO adj.		●	●	●		
	PSIG gray adj. *3		●	●	●		
	RGB AMP adj.		●	●	●		
	Black limit adj. *3		●	●	●		
	Contrast adj.		●	●	●		
	COM AMP adj.*2, Center level adj.*3		●	●	●		
	V-COM adj.		●	●	●		
	White balance adj.		●	●	●		
System control	Serial No. input			●	●		
Servo & RF	REEL FG adj.			●	●		●
	Switching position adj.			●	●		●
	AGC center level adj.			●	●		●
	APC & AEQ adj.			●	●		●
	PLL fo & LPF fo adj.			●	●		●
	Hi8/Std8 switching position adj.			●	●		
	CAP FG duty adj.			●	●		●
Video	54MHz/66MHz origin oscillation adj.			●	●		
	S VIDEO OUT Y level adj.			●	●		
	S VIDEO OUT chroma level adj.			●	●		
	Hi8/Std8 Y/C output level setting			●	●		●
	Hi8/Std8 AFC fo adj.			●	●		●
Audio	Hi8/Std8 AFM BPF fo adj.			●	●		
	Hi8/Std8 AFM 1.5MHz deviation adj.			●	●		
	Hi8/Std8 AFM 1.7MHz deviation adj.			●	●		
Mechanism	Tape path adj.						

Table. 5-1-1 (2).

*1: When replacing the drum assy. or mechanism deck, reset the data of page: 7, address: A7 to A9 to "00". (Refer to "Record of Use check" of "5-4. SERVICE MODE")

*2: LCD TYPE CA/SH (PD-156 board)
DCR-TRV738E
DCR-TRV740E: AEP, EE, NE, RU
DCR-TRV840

*3: LCD TYPE SO (PD-160 board)
DCR-TRV740
DCR-TRV740E: E, AUS, HK, CH, JE
DCR-TRV840

*4: When replacing the IC4903, set the loader writing inhibit mode. (Refer to "1-2-2. INITIALIZATION OF B, 1B PAGE DATA".)

- Abbreviation
  HK : Hong Kong model
  AUS : Australian model
  CH : Chinese model
  JE : Tourist model
  EE : East European model
  NE : North European model
  RU : Russian model

5-1. CAMERA SECTION ADJUSTMENT

1-1. PREPARATIONS BEFORE ADJUSTMENT (CAMERA SECTION)

1-1-1. List of Service Tools

• Oscilloscope • Color monitor • Vectorscope
• Regulated power supply • Digital voltmeter

Ref. No.	Name	Parts Code	Usage
J-1	Filter for color temperature correction (C14)	J-6080-058-A	Auto white balance adjustment/check White balance adjustment/check
J-2	ND filter 1.0	J-6080-808-A	White balance check
	ND filter 0.4	J-6080-806-A	White balance check
	ND filter 0.1	J-6080-807-A	White balance check
J-3	Pattern box PTB-450	J-6082-200-A	
J-4	Color chart for pattern box	J-6020-250-A	
J-5	Adjustment remote commander (RM-95 upgraded) (Note1)	J-6082-053-B	
J-6	Siemens star chart	J-6080-875-A	For checking the flange back
J-7	Clear chart for pattern box	J-6080-621-A	
J-8	Multi CPC jig	J-6082-311-A	For adjusting the LCD block
J-9	CPC-13 jig	J-6082-443-A	For adjusting the video section For adjusting the color viewfinder
J-10	Minipattern box	J-6082-353-B	For adjusting the flange back
J-11	Camera base	J-6082-384-A	For adjusting the flange back

Note1: If the micro processor IC in the adjustment remote commander is not the new micro processor (UPD7503G-C56-12), the pages cannot be switched. In this case, replace with the new micro processor (8-759-148-35).

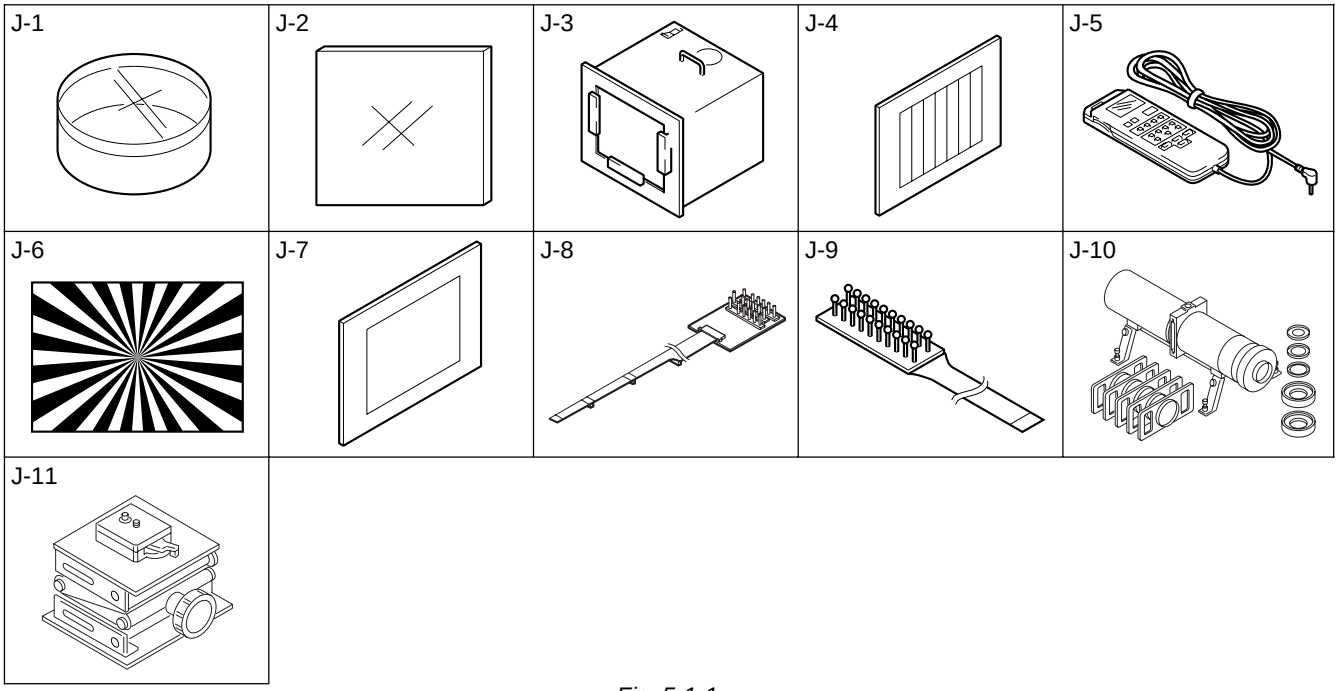


Fig. 5-1-1.

1-1-2. Preparations

Note1: For details of how remove the cabinet and boards, refer to "2. DISASSEMBLY".

Note2: When performing only the adjustments, the lens block and boards need not be disassembled.

Note3: Before performing the adjustments, check the data of page: 0, address: 10 is "00". If not, set data: 00 to this address.

1) Connect the equipment for adjustments according to Fig. 5-1-3.
2) The front panel block (SI-032 board (Microphone amp., remote commander receiver), FP-411 flexible (MIC jack, Head phone jack, LANC jack, MF photo sensor)) must be assembled for connecting the adjusting remote commander.

Note4: As removing the cabinet (R) assembly (removing CN1110 of the VC-278 board) means removing the lithium 3V power supply (BT001 on the CF-2500 block), data such as date, time, user-set menus will be lost. After completing adjustments, reset these data. But the self-diagnosis data and the data on history of use (total drum rotation time etc.) will be kept even if the lithium 3V power supply is removed. (Refer to "5-4.Service Mode" for the self-diagnosis data and the data on history of use.)

Note5: Setting the "Forced Camera Power ON" Mode
1) Select page: 0, address: 01, and set data: 01.
2) Select page: D, address: 10, set data: 01, and press the PAUSE button.
The above procedure will enable the camera power to be turned on with the SS-1380 block removed. After completing adjustments, be sure to exit the "Forced Camera Power ON Mode".

Note6: Exiting the "Forced Camera Power ON" Mode
1) Select page: 0, address: 01, and set data: 01.
2) Select page: D, address: 10, set data: 00, and press the PAUSE button.
3) Select page: 0, address: 01, and set data: 00.

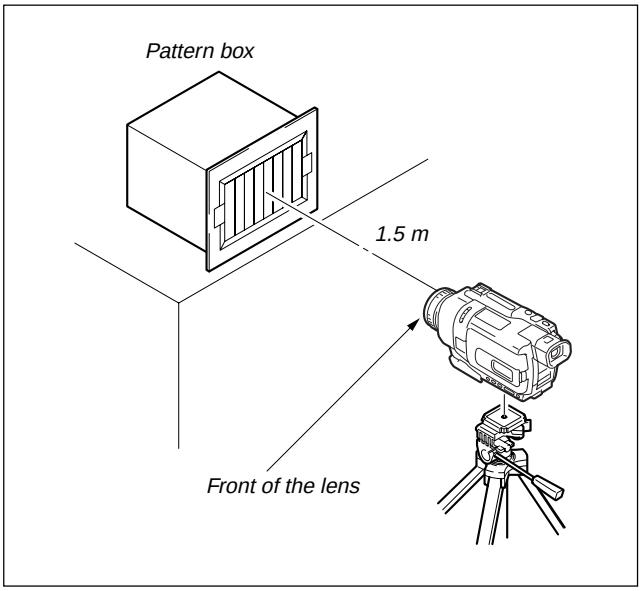


Fig. 5-1-2.

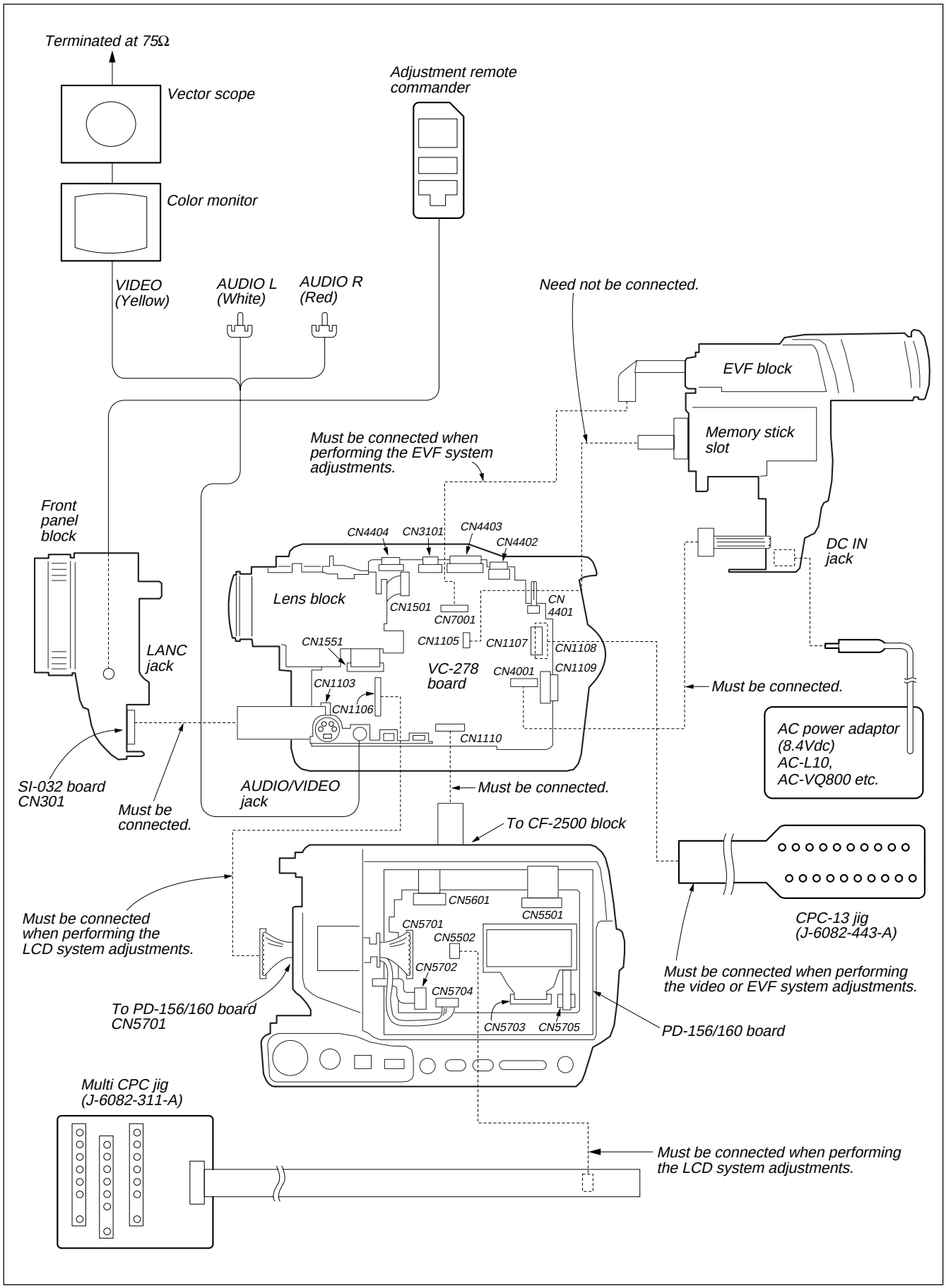

Terminated at 75Ω
Vector scope
Color monitor
Adjustment remote commander
VIDEO (Yellow)
AUDIO L (White)
AUDIO R (Red)
Need not be connected.
EVF block
Memory stick slot
Must be connected when performing the EVF system adjustments.
Front panel block
CN4404
CN3101
CN4403
CN4402
Lens block
CN1501
CN7001
CN 4401
CN1551
CN1105
CN1107
CN1108
LANC jack
VC-278 board
CN4001
CN1109
CN1103
CN1106
CN1110
DC IN jack
Must be connected.
AC power adaptor (8.4Vdc) AC-L10, AC-VQ800 etc.
SI-032 board CN301
Must be connected.
AUDIO/VIDEO jack
Must be connected.
To CF-2500 block
CN5601
CN5501
CN5701
CN5502
CN5702
CN5704
CN5703
CN5705
Must be connected when performing the LCD system adjustments.
To PD-156/160 board CN5701
CPC-13 jig (J-6082-443-A)
Must be connected when performing the video or EVF system adjustments.
PD-156/160 board
Multi CPC jig (J-6082-311-A)
Must be connected when performing the LCD system adjustments.

Fig. 5-1-3.

1-1-3. Precaution

1. Setting the Switch

Unless otherwise specified, set the switches as follows and perform adjustments without loading cassette.

1. POWER switch (SS-1380 block) ..... CAMERA
2. NIGHT SHOT switch (Lens block) ..... OFF
3. COLOR SLOW SHUTTER (FK-2500 block) ..... OFF
4. DEMO MODE (Menu display) ..... OFF
5. DIGITAL ZOOM (Menu display) ..... OFF
6. STEADY SHOT (Menu display) ..... OFF
7. DISPLAY (Menu display) ..... V-OUT/LCD
8. DISPLAY (CF-2500 block) ..... ON
9. FOCUS switch (CF-2500 block) ..... MANUAL
10. BACK LIGHT (CF-2500 block) ..... OFF
11. PROGRAM AE (Menu display) ..... OFF
12. PICTURE EFFECT (Menu display) ..... OFF
13. DIGITAL EFFECT (Menu display) ..... OFF
14. AUTO SHUTTER (Menu display) ..... OFF
15. 16 : 9 WIDE (MENU display) ..... OFF

2. Order of Adjustments

Basically carry out adjustments in the order given.

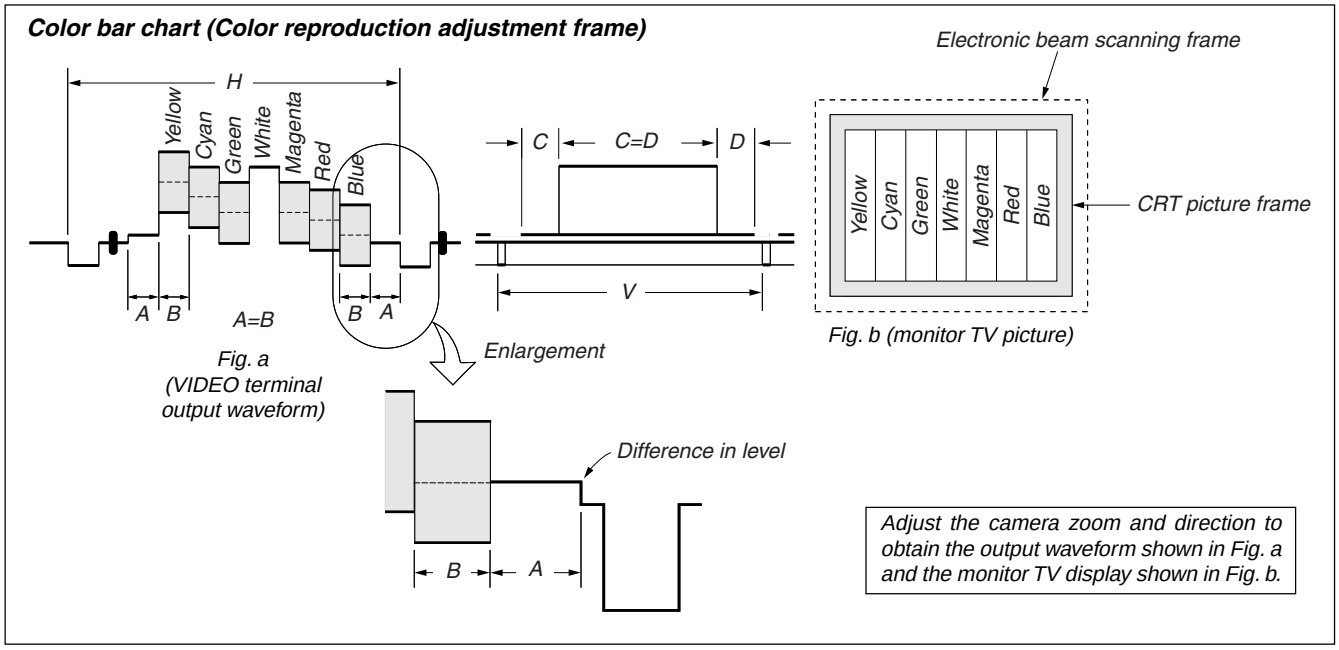


Fig.5-1-4.

3. Subjects

1) Color bar chart (Color reproduction adjustment frame)
   When performing adjustments using the color bar chart, adjust the picture frame as shown in Fig. 5-1-4. (Color reproduction adjustment frame)
2) Clear chart (Color reproduction adjustment frame)
   Remove the color bar chart from the pattern box and insert a clear chart in its place. (Do not perform zoom operations during this time.)
3) Flange back adjustment chart
   Make the chart shown in Fig. 5-1-5 using A0 size (1189mm × 841mm) black and white vellum paper.

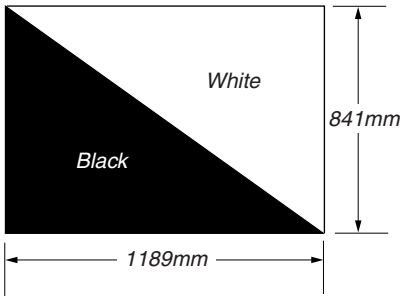


Fig. 5-1-5.

Note: Use matte vellum paper bigger than A0, and make sure the edges of the black and white paper joined together are not rough.

1-2. INITIALIZATION OF 8, A, B, C, D, E, F, 1B, 1C, 1E, 1F PAGE DATA

Note: When reading or writing the 1B, 1C, 1D, 1E or 1F page data, select page: 0, address: 10, and set data: 01, then select B, C, D, E or F page. The 1B, 1C, 1D, 1E or 1F page can be chosen by this data setting.
After reading or writing, reset the data of page: 0, address: 10 to "00".

[Connection of the power supply during the initialization of the data.]

1) Connect the regulated power supply and the digital voltmeter to the battery terminal as shown in Fig. 5-1-6.
2) Adjust the output voltage of the regulated power supply so that the digital voltmeter display is 6.0 ± 0.1Vdc.
3) Turn off the power supply.
4) Turn on the HOLD switch of the adjustment remote commander.
5) Turn on the power supply.
6) Perform the initialization of the data.
   Note: This is normal though the following message is indicated on the LCD screen.
   "FOR InfoLITHIUM BATTERY ONLY"

[Initialization Procedure]

1. Initialization of A, D page data
2. Initialization of B, 1B page data
3. Initialization of 8, C, 1C page data
4. Initialization of E, F, 1E, 1F page data

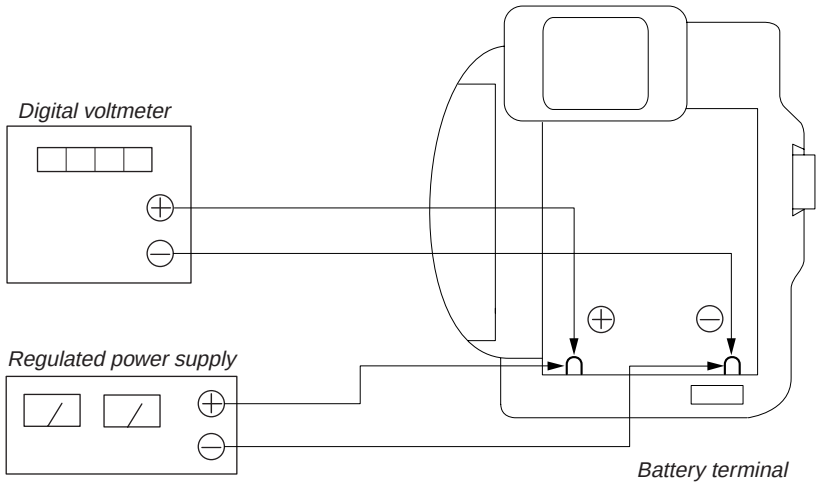


Fig. 5-1-6.

1-2-1. INITIALIZATION OF A, D PAGE DATA

Note: The data of page: 0, address: 10 must be "00".

1. Initializing the A, D Page Data

Note1: If "Initializing the A, D Page Data" is performed, all data of the A page and D page will be initialized. (It is impossible to initialize a single page.)

Note2: If the A, D page data has been initialized, the following adjustments need to be performed again.
1) Modification of A, D page data

Note3: The power supply voltage must be 6.0 ± 0.1Vdc.

Note4: NTSC model: DCR-TRV740/TRV840
PAL model: DCR-TRV738E/TRV740E

Adjusting page	A
Adjusting Address	10 to FF
Adjusting page	D
Adjusting Address	10 to 67

Initializing Method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	0	10	00	Set the data.
3	7	03		Set the following data. 01 (NTSC), 81 (PAL)
4	7	00	28	Set the data
5	7	01	28	Set the data, and press the PAUSE button.
6	7	02		Check that the data changes to "01"
7	2	00	29	Set the data.
8	2	01	29	Set the data, and press the PAUSE button.
9				Perform "Modification of A, D Page Data".

2. Modification of A, D Page Data

If the A, D page data has been initialized, change the data of the "Fixed data-2" address shown in the following tables by manual input.

Modifying Method:

1) Before changing the data, select page: 0, address: 01, and set data: 01.
2) New data for changing are not shown in the tables because they are different in destination. When changing the data, copy the data built in the same model.
   Note: If copy the data built in the different model, the camcorder may not operate.
3) When changing the data, press the PAUSE button of the adjustment remote commander each time when setting new data to write the data in the non-volatile memory.

Processing after Completing Modification of A, D Page data

Order	Page	Address	Data	Procedure
1	0	10	00	Set the data.
2	2	00	29	Set the data.
3	2	01	29	Set the data, and press PAUSE button.

Note: If the following symptoms occur after completing of the "Modification of A, D page data", check that the data of the "Fixed data-2" addresses of A and D page are same as those of the same model of the same destination.
1) The self-diagnosis code "E:20:00" on the LCD screen is displayed.
2) The power is shut off so that unit cannot operate.

3. A Page Table

Note1: The data of page: 0, address: 10 must be "00".

Note2: Fixed data-1: Initialized data. (Refer to "1. Initializing the A, D Page Data".)
Fixed data-2: Modified data. (Refer to "2. Modification of A, D Page Data".)

Address	Remark
00 to 0F	
10 to 17	Fixed data-1
18	Fixed data-2
19	Fixed data-1
1A	Fixed data-2
1B to 31	Fixed data-1
32	Fixed data-2
33 to 59	Fixed data-1
5A	Fixed data-2
5B to C1	Fixed data-1
C2	Fixed data-2
C3 to CF	Fixed data-1
D0	Fixed data-2
D1	
D2 to FF	Fixed data-1

Table. 5-1-2.

4. D Page Table

Note1: The data of page: 0, address: 10 must be “00”.

Note2: Fixed data-1: Initialized data. (Refer to “1. Initializing the A, D Page Data”.)
Fixed data-2: Modified data. (Refer to “2. Modification of A, D Page Data”.)

Address	Initial value	Remark
00 to 0F		
10	00	Test mode
11 to 12		Fixed data-1
13		Fixed data-2
14 to 15		Fixed data-1
16		Fixed data-2
17 to 21		Fixed data-1
22		Fixed data-2 (Modified data. Copy the data built in the same model.)
23		
24		
25		
26		
27 to 29		Fixed data-1
2A		Fixed data-2
2B		
2C to 36		Fixed data-1
37		Fixed data-2
38		Fixed data-1
39		Fixed data-2
3A		
3B to 5E		Fixed data-1
5F		Fixed data-2
60 to 67		Fixed data-1

Table. 5-1-3.

1-2-2. INITIALIZATION OF B, 1B PAGE DATA

Note: When reading or writing the B page data, select page: 0, address: 10, and set data: 00.
When reading or writing the 1B page data, select page: 0, address: 10, and set data: 01, then select B page. The 1B page can be chosen by this data setting.
After reading or writing, reset the data of page: 0, address: 10 to "00".

1. Initializing the B, 1B Page Data

Note1: If "Initializing the B, 1B Page Data" is performed, all data of the B page and 1B page will be initialized. (It is impossible to initialize a single page.)

Note2: If the B, 1B page data has been initialized, the following adjustments need to be performed again.
1) Modification of B, 1B page data

Note3: The power supply voltage must be 6.0 ± 0.1Vdc.

Adjusting page	B
Adjusting Address	00 to FF
Adjusting page	1B
Adjusting Address	00 to FF

Initializing Method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	0	10	00	Set the data.
3	5	02	FF	Set the data.
4	5	01	F3	Set the data, and press PAUSE button.
5	5	00	01	Set the data, and press PAUSE button.
6	5	02		Check that the data changes to "00".
7	2	00	29	Set the data
8	2	01	29	Set the data, and press the PAUSE button.
9				Perform "Modification of B, 1B Page Data".

2. Modification of B, 1B Page Data

If the B, 1B page data has been initialized, change the data of the "Fixed data-2" address shown in the following tables by manual input.

Modifying Method:

1) Before changing the data, select page: 0, address: 01, and set data: 01.
2) When changing the B page data, select page: 0, address: 10, and set data: 00.
3) When changing the 1B page data, select page: 0, address: 10, and set data: 01.
   After completing the modification of 1B page data, reset the data of this address to "00".
4) New data for changing are not shown in the tables because they are different in destination. When changing the data, copy the data built in the same model.
   Note: If copy the data built in the different model, the camcorder may not operate.
5) When changing the data, press the PAUSE button of the adjustment remote commander each time when setting new data to write the data in the non-volatile memory.

Processing after Completing Modification of B, 1B Page data:

Order	Page	Address	Data	Procedure
1	0	10	00	Set the data.
2	2	00	29	Set the data.
3	2	01	29	Set the data, and press PAUSE button.

3. Loader writing inhibit mode setting

When replacing the IC4903 (EEPROM), set the loader inhibit mode.

Setting Method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	0	10	00	Set the data.
3	5	0E	00	Set the data, and press PAUSE button.
4	5	03	20	Set the data, and press PAUSE button.
5	5	01	FA	Set the data, and press PAUSE button.
6	5	00	01	Set the data, and press PAUSE button.
7	5	0E		Check that the data is "01".
8	2	00	29	Set the data
9	2	01	29	Set the data, and press the PAUSE button.

4. B Page Table

Note1: The data of page: 0, address: 10 must be "00".

Note2: Fixed data-1: Initialized data. (Refer to "1. Initializing the B, 1B Page Data".)
Fixed data-2: Modified data. (Refer to "2. Modification of B, 1B Page Data".)

Address	Remark
00 to FF	Fixed data-1

Table. 5-1-4.

5. 1B Page Table

Note1: When reading or writing the 1B page data, select page: 0, address: 10, and set data: 01, then select B page. The 1B page can be chosen by this data setting.
After reading or writing, reset the data of page: 0, address: 10 to "00".

Note2: Fixed data-1: Initialized data. (Refer to "1. Initializing the B, 1B Page Data".)
Fixed data-2: Modified data. (Refer to "2. Modification of B, 1B Page Data".)

Address	Remark
00 to FF	Fixed data-1

Table. 5-1-5.

1-2-3. INITIALIZATION OF 8, C, 1C PAGE DATA

Note: When reading or writing the 8, C page data, select page: 0, address: 10, and set data: 00.
When reading or writing the 1C page data, select page: 0, address: 10, and set data: 01, then select C page. The 1C page can be chosen by this data setting.
After reading or writing, reset the data of page: 0, address: 10 to "00".

1. Initializing the 8, C, 1C Page Data

Note1: If "Initializing the 8, C, 1C Page Data" is performed, all data of the 8 page, C page and 1C page will be initialized. (It is impossible to initialize a single page.)

Note2: If the 8, C, 1C page data has been initialized, following adjustments need to be performed again.
1) Modification of 8, C, 1C page data
2) Serial No. input
3) Viewfinder system adjustments
4) LCD system adjustments
5) Servo and RF system adjustments
6) Video system adjustments
7) Audio system adjustments

Note3: The power supply voltage must be 6.0 ± 0.1Vdc.

Adjusting page	8
Adjusting Address	00 to A3
Adjusting page	C
Adjusting Address	10 to FF
Adjusting page	1C
Adjusting Address	00 to FF

Initializing Method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	0	10	00	Set the data.
3	3	81	10	Set the data.
4	3	80	0C	Set the data, and press PAUSE button.
5	3	80		Check that the data changes to "1C".
6	2	00	29	Set the data
7	2	01	29	Set the data, and press the PAUSE button.
8				Perform "Modification of 8, C, 1C Page Data".

2. Modification of 8, C, 1C Page Data

If the 8, C, 1C page data has been initialized, change the data of the "Fixed data-2" address shown in the following table by manual input.

Modifying Method:

1) Before changing the data, select page: 0, address: 01, and set data: 01.
2) When changing the 8, C page data, select page: 0, address: 10, and set data: 00.
3) When changing the 1C page data, select page: 0, address: 10, and set data: 01.
   After completing the modification of 1C page data, reset the data of this address to "00".
4) New data for changing are not shown in the tables because they are different in destination. When changing the data, copy the data built in the same model.
   Note: If copy the data built in the different model, the camcorder may not operate.
5) When changing the data, press the PAUSE button of the adjustment remote commander each time when setting new data to write the data in the non-volatile memory.
6) Check that the data of adjustment addresses is the initial value. If not, change the data to the initial value.

Processing after Completing Modification of 8, C, 1C Page data

Order	Page	Address	Data	Procedure
1	0	10	00	Set the data.
2	2	00	29	Set the data.
3	2	01	29	Set the data, and press PAUSE button.

3. 8 Page Table

Note1: The data of page: 0, address: 10 must be “00”.

Note2: Fixed data-1: Initialized data. (Refer to “1. Initializing the 8, C, 1C Page Data”.)
Fixed data-2: Modified data. (Refer to “2. Modification of 8, C, 1C Page Data”.)

Address	Initial value	Remark
00 to 18		Fixed data-1
19		Fixed data-2
1A to 34		Fixed data-1
35		Fixed data-2
36 to 49		Fixed data-1
4A		Fixed data-2
4B to 51		Fixed data-1
52		Fixed data-2
53 to 79		Fixed data-1
7A		Fixed data-2 (Modified data. Copy the data built in the same model.)
7B		
7C		
7D		
7E		
7F		
80		
81		
82		
83		
84		
85 to 89		Fixed data-1
8A		Fixed data-2
8B		Fixed data-1
8C	08	Serial No. input
8D	00	
8E	46	
8F	01	
90	02	
91	00	
92	00	
93	00	
84 to A3		Fixed data-1

Table. 5-1-6.

4. C Page Table

Note1: The data of page: 0, address: 10 must be “00”.

Note2: Fixed data-1: Initialized data. (Refer to “1. Initializing the 8, C, 1C Page Data”.)
Fixed data-2: Modified data. (Refer to “2. Modification of 8, C, 1C Page Data”.)

Address	Initial value	Remark
00 to 0F		
10	EE	Switching position adj.
11	00	
12	00	
13	00	
14 to 15		Fixed data-1
16	E0	Hi8/std8 CAP FG duty adj.
17	E0	Reel FG adj.
18	20	AEQ adj.
19	20	
1A		Fixed data-1
1B	25	AEQ adj.
1C	25	
1D		Fixed data-1
1E	25	AGC center level adj.
1F	3E	PLL fo adj.
20	3E	
21	CA	APC adj.
22	99	LPF fo adj.
23 to 24		Fixed data-1
25	88	S VIDEO out Y level adj.
26	E3	S VIDEO out Cr level adj.
27	A1	S VIDEO out Cb level adj.
28		Fixed data-2
29	20	PLL fo adj.
2A to 2B		Fixed data-1
2C	03	APC adj.
2D		Fixed data-1
2E		Fixed data-2
2F	E0	Reel FG adj.
30 to 3C		Fixed data-1
3D		Fixed data-2
3E		Fixed data-1
3F		Fixed data-2
40	0A	Hi8/std8 switching position adj.
41	00	
42		Fixed data-1
43	50	Hi8/std8 AFC fo adj.
44	69	Hi8/Std8 Y/C output level set
45	64	
46 to 47		Fixed data-1
48		Fixed data-2
49		Fixed data-1
4A		Fixed data-2
4B		Fixed data-1
4C	A6	Hi8/std8 AFM 1.5MHz deviation adj.
4D	94	Hi8/std8 AFM 1.7MHz deviation adj.
4E	80	Hi8/std8 AFM BPF fo adj.
4F		Fixed data-2
50		

C page

Address	Initial value	Remark
51	61/69 *1	VCO adj. (EVF)
52	76/56 *1	
53		Fixed data-1
54	9D/9C *1	RGB AMP adj. (EVF)
55 to 57		Fixed data-1
58	2B/26 *1	Contrast adj. (EVF)
59		Fixed data-1
5A		Fixed data-2
5B to 5E		Fixed data-1
5F		Fixed data-2
60	8F/8A/86/ A7/8F *2	Fixed data
61	5C/51/5B/ 67/68 *2	VCO adj. (LCD)
62	70/54/62/ 53/59 *2	
63	21/85/24/ 8B/22 *2	V-COM adj. (LCD)
64	9D/20/B2/ 29/A1 *2	RGB AMP adj. (LCD)
65	08/00/07/ 00/08 *2	Fixed data *3 Black limit adj. (LCD) *4
66	3D/9D/3A/ 99/3F *2	COM AMP adj. *3 PSIG gray adj. (LCD) *4
67	7E/55/7E/ 84/81 *2	White balance adj. (LCD)
68	6C/3F/78/ 5F/6F *2	
69	20/37/2A/ 40/1E *2	Contrast adj. (LCD)
6A	37/00/2D/ 00/37 *2	Fixed data *3 Center level adj. (LCD)*4
6B	0C/50/0F/ 32/0C *2	Fixed data
6C	0C/10/0F/ 12/0C *2	
6D		Fixed data-1
6E	5F/1F/DF/ 1F/5F *2	Fixed data
6F to 71		Fixed data-1
72		Fixed data-2
73 to 75		Fixed data-1
76		Fixed data-2
77 to 79		Fixed data-1
7A		Fixed data-2
7B to 81		Fixed data-1
81		Fixed data-2
82		
83 to 85		Fixed data-1
86		Fixed data-2
87 to 88		Fixed data-1
89		Fixed data-2
8A		
8B to A9		Fixed data-1
AA		Fixed data-2

Address	Initial value	Remark
AB		Fixed data-1
AC		Fixed data-2
AD to AE		Fixed data-1
AF		Fixed data-2
B0 to D4		Fixed data-1
D5		Fixed data-2
D6		
D7 to DC		Fixed data-1
DD		Fixed data-2
DE to E1		Fixed data-1
E2		Fixed data-2
E3		
E4 to F3		Fixed data-1
F4	00	Emergency memory address
F5	00	
F6	00	
F7	00	
F8	00	
F9	00	
FA	00	
FB	00	
FC	00	
FD	00	
FE	00	
FF	00	

*1: NTSC/PAL
*2: A/B/C/D/E
A: NTSC 2.5 LCD TYPE SO (DCR-TRV740)
B: NTSC 3.5 LCD TYPE CA (DCR-TRV840)
C: NTSC 3.5 LCD TYPE SO (DCR-TRV840)
D: PAL 2.5 LCD TYPE SH
(DCR-TRV738E/TRV740E (AEP/EE/NE/RU))
E: PAL 2.5 LCD TYPE SO
(DCR-TRV740E (E/AUS/HK/CN/JE))
*3: LCD TYPE CA or SH (PD-156 board)
*4: LCD TYPE SO (PD-160 board)

Table. 5-1-7.

5. 1C Page Table

Note1: When reading or writing the 1C page data, select page: 0, address: 10, and set data: 01, then select C page. The 1C page can be chosen by this data setting.
After reading or writing, reset the data of page: 0, address: 10 to "00".

Note2: Fixed data-1: Initialized data. (Refer to "1. Initializing the 8, C, 1C Page Data".)
Fixed data-2: Modified data. (Refer to "2. Modification of 8, C, 1C Page Data".)

Address	Remark
00 to 03	Fixed data-1
04	Fixed data-2
05 to 06	Fixed data-1
07	Fixed data-2
08	
09	Fixed data-1
0A	Fixed data-2
0B	(Modified data. Copy the data built in the same
0C	model.)
0D	
0E	
0F	Fixed data-1
10	Fixed data-2
11	
12 to 13	Fixed data-1
14	Fixed data-2
15	
16 to 17	Fixed data-1
18	Fixed data-2
19 to 1A	Fixed data-1
1B	Fixed data-2
1C	Fixed data-1
1D	Fixed data-2
1E	Fixed data-1
1F	Fixed data-2
20 to 22	Fixed data-1
23	Fixed data-2
24 to 26	Fixed data-1
27	Fixed data-2
28 to 39	Fixed data-1
3A	Fixed data-2
3B	Fixed data-1
3C	Fixed data-2
3D	(Modified data. Copy the data built in the same
3E	model.)
3F to 40	Fixed data-1
41	Fixed data-2
42 to 43	Fixed data-1
44	Fixed data-2
45	(Modified data. Copy the data built in the same
46	model.)
47	Fixed data-1
48	Fixed data-2
49	Fixed data-1
4A	Fixed data-2
4B to 4F	Fixed data-1
50	Fixed data-2
51 to 55	Fixed data-1
56	Fixed data-2
57	
58 to 5A	Fixed data-1
5B	Fixed data-2
5C	Fixed data-1
5D	Fixed data-2
5E	Fixed data-1
5F	Fixed data-2
60	
61	Fixed data-1
62	Fixed data-2
63	(Modified data. Copy the data built in the same
64	model.)
65	Fixed data-1
66	Fixed data-2
67	Fixed data-1
68	Fixed data-2
69	(Modified data. Copy the data built in the same
6A	model.)
6B to 6C	Fixed data-1
6D	Fixed data-2
6E	
6F	Fixed data-1
70	Fixed data-2
71	Fixed data-1
72	Fixed data-2
73	(Modified data. Copy the data built in the same
74	model.)
75	
76	
77	
78	Fixed data-1
79	Fixed data-2
7A	(Modified data. Copy the data built in the same
7B	model.)
7C	
7D	
7E	
7F	
80	
81	Fixed data-1
82	Fixed data-2
83 to 85	Fixed data-1
86	Fixed data-2
87	(Modified data. Copy the data built in the same
88	model.)
89	
8A	
8B	
8C to 97	Fixed data-1
98	Fixed data-2
99 to 9E	Fixed data-1
9F	Fixed data-2
A0 to FF	Fixed data-1

Table. 5-1-8.

1-2-4. INITIALIZATION OF E, F, 1E, 1F PAGE DATA

Note: When reading or writing the E, F page data, select page: 0, address: 10, and set data: 00.
When reading or writing the 1E or 1F page data, select page: 0, address: 10, and set data: 01, then select E or F page. The 1E or 1F page can be chosen by this data setting.
After reading or writing, reset the data of page: 0, address: 10 to "00".

1. Initializing the E, F, 1E, 1F Page Data

Note1: If "Initializing the E, F, 1E, 1F Page Data" is performed, all data of the E page, F page, 1E page and 1F page will be initialized. (It is impossible to initialize a single page.)

Note2: If the E, F, 1E, 1F page data has been initialized, following adjustments need to be performed again.
1) Modification of E, F, 1E, 1F page data
2) 54MHz/66MHz origin osc. Adj.
3) Camera system adjustments

Note3: The power supply voltage must be 6.0 ± 0.1Vdc.

Note4: NTSC model: DCR-TRV840
PAL model: DCR-TRV738E/TRV740E

Adjusting page	E
Adjusting Address	00 to FF
Adjusting page	F
Adjusting Address	10 to FF
Adjusting page	1E
Adjusting Address	00 to 2F
Adjusting page	1F
Adjusting Address	00 to FF

Initializing Method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	0	10	00	Set the data.
3	6	01		Set the following data, and press PAUSE button. 2D (NTSC), 2F (PAL)
4	6	03	01	Set the data, and press PAUSE button.
5	6	02		Check that the data changes to "01".
6	2	00	29	Set the data
7	2	01	29	Set the data, and press the PAUSE button.
8				Perform "Modification of E, F, 1E, 1F Page Data".

2. Modification of E, F, 1E, 1F Page Data

If the E, F, 1E, 1F page data has been initialized, change the data of the "Fixed data-2" address shown in the following table by manual input.

Modifying Method:

1) Before changing the data, select page: 0, address: 01, and set data: 01.
2) When changing the E, F page data, select page: 0, address: 10, and set data: 00.
3) When changing the 1E, 1F page data, select page: 0, address: 10, and set data: 01.
   After completing the modification of 1E, 1F page data, reset the data of this address to "00".
4) New data for changing are not shown in the tables because they are different in destination. When changing the data, copy the data built in the same model.
   Note: If copy the data built in the different model, the camcorder may not operate.
5) When changing the data, press the PAUSE button of the adjustment remote commander each time when setting new data to write the data in the non-volatile memory.
6) Check that the data of adjustment addresses is the initial value. If not, change the data to the initial value.

Processing after Completing Modification of E, F, 1E, 1F Page data

Order	Page	Address	Data	Procedure
1	0	10	00	Set the data.
2	2	00	29	Set the data.
3	2	01	29	Set the data, and press PAUSE button.

3. E Page Table

Note1: The data of page: 0, address: 10 must be “00”.

Note2: Fixed data-1: Initialized data. (Refer to “1. Initializing the E, F, 1E, 1F Page Data”.)
Fixed data-2: Modified data. (Refer to “2. Modification of E, F, 1E, 1F Page Data”.)

Address	Remark
00 to 04	Fixed data-1
05	Fixed data-2
06 to 07	Fixed data-1
08	Fixed data-2
09	(Modified data. Copy the data built in the same
0A	model.)
0B	
0C to 0C	Fixed data-1
0D	Fixed data-2
0E	
0F to 1A	Fixed data-1
1B	Fixed data-2
1C to 1F	Fixed data-1
20	Fixed data-2
21	(Modified data. Copy the data built in the same
22	model.)
23	
24	Fixed data-1
25	Fixed data-2
26	(Modified data. Copy the data built in the same
27	model.)
28 to 3B	Fixed data-1
3C	Fixed data-2
3D	(Modified data. Copy the data built in the same
3E	model.)
3F	
40 to 41	Fixed data-1
42	Fixed data-2
43 to 46	Fixed data-1
47	Fixed data-2
48 to 53	Fixed data-1
54	Fixed data-2
55	
56 to 5A	Fixed data-1
5B	Fixed data-2
5C	(Modified data. Copy the data built in the same
5D	model.)
5E	
5F	
60	Fixed data-1
61	Fixed data-2
62	(Modified data. Copy the data built in the same
63	model.)
64 to 65	Fixed data-1
66	Fixed data-2
67	(Modified data. Copy the data built in the same
68	model.)
69	
6A to 6E	Fixed data-1
6F	Fixed data-2
70	(Modified data. Copy the data built in the same
71	model.)
72 to 9B	Fixed data-1
9C	Fixed data-2
9D	Fixed data-1
9E	Fixed data-2
9F to CD	Fixed data-1
CE	Fixed data-2
CF to DF	Fixed data-1
E0	Fixed data-2
E1	
E2	Fixed data-1
E3	Fixed data-2
E4	(Modified data. Copy the data built in the same
E5	model.)
E6	
E7	
E8	
E9	
EA	
EB to EE	Fixed data-1
EF	Fixed data-2
F0 to F6	Fixed data-1
F7	Fixed data-2
F8 to FF	Fixed data-1

Table. 5-1-9.

4. F Page Table

Note1: The data of page: 0, address: 10 must be “00”.

Note2: Fixed data-1: Initialized data. (Refer to “1. Initializing the E, F, 1E, 1F Page Data”.)
Fixed data-2: Modified data. (Refer to “2. Modification of E, F, 1E, 1F Page Data”.)

Address	Initial value	Remark
00 to FF		
10	40	54/66MHz origin osc. adj.
11 to 12		Fixed data-1
13	44	HALL adj.
14	CE	
15	17	
16 to 18		Fixed data-1
19		Fixed data-2
1A	80	AWB & LV standard data input
1B	7A	
1C to 2F		Fixed data-1
30	4D	AWB & LV standard data input
31	3E	
32	64	
33	59	
34	98	Auto white balance adj.
35	75	
36		Fixed data-1
37	3A	Color reproduction adj.
38		Fixed data-1
39	2E	Color reproduction adj.
3A to 3F		Fixed data-1
40	FE	Color reproduction adj.
41	DF	
42 to 43		Fixed data-1
44		Fixed data-2 (Modified data. Copy the data built in the same model.)
45		
46		
47		
48	28	Flange back adj.
49	8E	
4A	34	
4B	69	
4C	11	
4D	64	
4E	00	
4F	00	
50	00	
51	00	
52	2B	
53	19	
54	00	
55	2F	
56	00	
57	00	
58	00	
59 to 71		Fixed data-1
72		Fixed data-2
73		
74 to 75		Fixed data-1
76	40	Mechanical shutter adj.
77	00	
78	34	
79	00	
7A	30	Mechanical shutter adj.
7B	00	
7C	2A	
7D	00	
7E	28	
7F	00	
80	40	
81	3A	
82	31	
83	31	
84	35	
85	1E	
86	80	
87	80	
88	80	
89	80	
8A	80	
8B	80	
8C	03	
8D	80	
8E	80	
8F	80	
90 to 97		Fixed data-1
98		Fixed data-2
99		
9A		
9B		
9C to A8		Fixed data-1
A9		Fixed data-2
AA		Fixed data-1
AB		Fixed data-2
AC to CF		Fixed data-1
D0		Fixed data-2
D1 to D7		Fixed data-1
D8		Fixed data-2 (Modified data. Copy the data built in the same model.)
D9		
DA		
DB		
DC		
DD		
DE		
DF		
E0 to E2		Fixed data-1
E3		Fixed data-2
E4		
E5 to F6		Fixed data-1
E7		Fixed data-2
E8 to F4		Fixed data-1
F5		Fixed data-2
F6		Fixed data-1
F7		Fixed data-2 (Modified data. Copy the data built in the same model.)
F8		
F9		
FA		
FB		
FC to FD		Fixed data-1
FE		Fixed data-2
FF		Fixed data-1

Table. 5-1-10.

5. 1E Page Table

Note1: When reading or writing the 1E page data, select page: 0, address: 10, and set data: 01, then select E page. The 1E page can be chosen by this data setting.
After reading or writing, reset the data of page: 0, address: 10 to "00".

Note2: Fixed data-1: Initialized data. (Refer to "1. Initializing the E, F, 1E, 1F Page Data".)
Fixed data-2: Modified data. (Refer to "2. Modification of E, F, 1E, 1F Page Data".)

Address	Initial value	Remark
00 to 1F		Fixed data-1
20	00	Black defective CCD adj.
21	00	
22	00	
23	00	
24	00	
25	00	
26	00	
27	00	
28	00	
29	00	
2A	00	
2B	00	
2C	00	
2D	00	
2E	00	
2F	00	

Table. 5-1-11.

6. 1F Page Table

Note1: When reading or writing the 1F page data, select page: 0, address: 10, and set data: 01, then select F page. The 1F page can be chosen by this data setting.
After reading or writing, reset the data of page: 0, address: 10 to "00".

Note2: Fixed data-1: Initialized data. (Refer to "1. Initializing the E, F, 1E, 1F Page Data".)
Fixed data-2: Modified data. (Refer to "2. Modification of E, F, 1E, 1F Page Data".)

Address	Remark
00 to 38	Fixed data-1
39	Fixed data-2
3A to 41	Fixed data-1
42	Fixed data-2
43 to 44	Fixed data-1
45	Fixed data-2
46	
47 to 9F	Fixed data-1
A0	Fixed data-2
A1	Fixed data-1
A2	Fixed data-2
A3 to AB	Fixed data-1
AC	Fixed data-2
AD	(Modified data. Copy the data built in the same
AE	model.)
AF	
B0 to B1	Fixed data-1
B2	Fixed data-2
B3	Fixed data-1
B4	Fixed data-2
B5 to B7	Fixed data-1
B8	Fixed data-2
B9	(Modified data. Copy the data built in the same
BA	model.)
BB to BD	Fixed data-1
BE	Fixed data-2
BF to C9	Fixed data-1
CA	Fixed data-2
CB	
CC	
CD to CE	Fixed data-1
CF	Fixed data-2
D0 to DC	Fixed data-1
DD	Fixed data-2
DE to E4	Fixed data-1
E5	Fixed data-2
E6 to FF	Fixed data-1

Table. 5-1-12.

1-3. CAMERA SYSTEM ADJUSTMENTS

Before perform the camera system adjustments, check that the specified values of "VIDEO SYSTEM ADJUSTMENTS" are satisfied.
And check that the data of page: 0, address: 10 is "00". If not, set data: 00 to this address.

1. HALL Adjustment RadarW

For detecting the position of the lens iris, adjust AMP gain and offset.

Subject	Not required
Measurement Point	Display data of page 1 (Note1)
Measuring Instrument	Adjustment remote commander
Adjustment Page	F
Adjustment Address	13, 14, 15
Specified Value 1	15 to 19
Specified Value 2	89 to 8D

Note1: Displayed data of page 1 of the adjustment remote commander.
1 : 00 : XX
IRIS display data

Note2: The data of page: 0, address: 10 must be "00".

Switch setting:
POWER ..... CAMERA

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	6	94	17	Set the data.
3	6	95	8B	Set the data.
4	6	01	6D	Set the data, and press PAUSE button.
5	6	02		Check that the data changes to "01". (Note3)
6	6	01	00	Set the data, and press PAUSE button.

Note3: The adjustment data will be automatically input to page: F, address: 13, 14, 15.

Checking method:

Order	Page	Address	Data	Procedure
1	0	03	03	Set the data.
2	6	01	01	Set the data, and press PAUSE button.
3	1			Check that the IRIS display data (Note1) satisfies the specified value 1.
4	6	01	03	Set the data, and press PAUSE button.
5	1			Check that the IRIS display data (Note1) satisfies the specified value.2.

Processing after Completing Adjustments:

Order	Page	Address	Data	Procedure
1	6	94	00	Set the data.
2	6	95	00	Set the data.
3	0	03	00	Set the data.
4	6	01	00	Set the data, and press PAUSE button.
5	0	01	00	Set the data.

2. Flange Back Adjustment (Using Minipattern Box) RadarW

The inner focus lens flange back adjustment is carried out automatically. In whichever case, the focus will be deviated during auto focusing/manual focusing.

Subject	Siemens star chart with ND filter for the minipattern box (Note1)
Measuring Instrument	Adjustment remote commander
Adjustment Page	F
Adjustment Address	48 to 58

Note1: Dark Siemens star chart.
Note2: This adjustment should be carried out upon completion of "HALL adjustment".
Note3: Make the lens horizontal and perform this adjustment.
Note4: The data of page: 0, address: 10 must be "00".
Note5: Check that the data of page: 6, address: 02 is "00". If not, set data: 00 to this address, and press the PAUSE button.

Switch setting:

1) POWER ..... CAMERA
2) NIGHT SHOT ..... OFF
3) COLOR SLOW SHUTTER ..... OFF

Preparations:

1) The minipattern box is installed as shown in the following figure.
   Note: The attachment lenses are not used.
2) Install the minipattern box so that the distance between it and the front of the lens of the camcorder is less than 3cm.
3) Make the height of the minipattern box and the camcorder equal.
4) Check that the output voltage of the regulated power supply is the specified voltage.
5) Check that at both the zoom lens TELE end and WIDE end, the center of the Siemens star chart and center of the exposure screen coincide.

Specified voltage: The specified voltage varies according to the minipattern box, so adjust the power supply output voltage to the specified voltage written on the sheet which is supplied with the minipattern box.

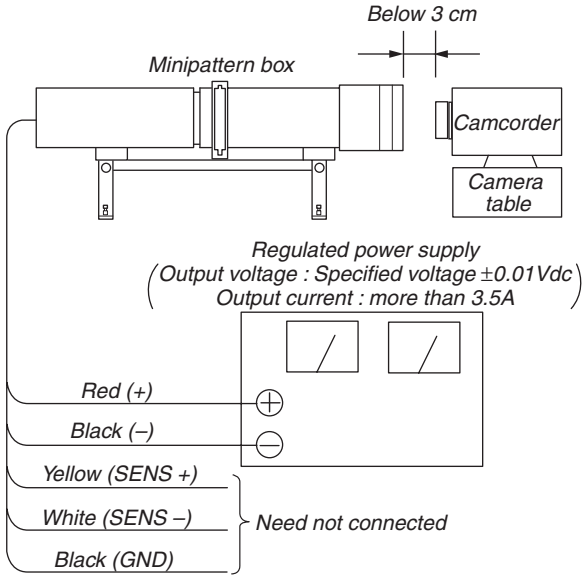


Fig. 5-1-7.

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	6	01	13	Set the data, and press PAUSE button.
3	6	01	27	Set the data, and press PAUSE button.
4	6	02		Check that the data changes to "01". (Note6)

Note6: The adjustment data will be automatically input to page: F, address: 48 to 58.

Processing after Completing Adjustments:

Order	Page	Address	Data	Procedure
1	0	01	00	Set the data.
2				Turn off the power and turn on again.
3				Perform "Flange Back Check".

3. Flange Back Adjustment (Using Flange Back Adjustment Chart and Subject More Than 500m Away)

The inner focus lens flange back adjustment is carried out automatically. In whichever case, the focus will be deviated during auto focusing/manual focusing.

3-1. Flange Back Adjustment (1) RadarW

Subject	Flange back adjustment chart (2.0 m from the front of the protection glass) (Luminance: 350 ± 50 lux)
Measuring Instrument	Adjustment remote commander
Adjustment Page	F
Adjustment Address	48 to 58

Note1: This adjustment should be carried out upon completion of "HALL adjustment".
Note2: Make the lens horizontal and perform this adjustment.
Note3: The data of page: 0, address: 10 must be "00".
Note4: Check that the data of page: 6, address: 02 is "00". If not, set data: 00 to this address, and press the PAUSE button.

Switch setting:

1) POWER ..... CAMERA
2) NIGHT SHOT ..... OFF
3) COLOR SLOW SHUTTER ..... OFF

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	6	01	13	Set the data, and press PAUSE button.
3	6	01	15	Set the data, and press PAUSE button.
4	6	02		Check that the data changes to "01". (Note5)

Note5: The adjustment data will be automatically input to page: F, address: 48 to 58.

Processing after Completing Adjustments:

Order	Page	Address	Data	Procedure
1				Turn off the power and turn on again.
2				Perform "Flange Back Adjustment (2)"

3-2. Flange Back Adjustment (2) RadarW

Perform this adjustment after performing "Flange Back Adjustment (1)".

Subject	Subject more than 500m away (Subjects with clear contrast such as buildings, etc.)
Measurement Point	Check operation on TV monitor
Measuring Instrument	
Adjustment Page	F
Adjustment Address	48 to 58

Note1: Make the lens horizontal and perform this adjustment.
Note2: The data of page: 0, address: 10 must be "00".
Note3: Check that the data of page: 6, address: 02 is "00". If not, set data: 00 to this address, and press the PAUSE button.

Switch setting:

1) POWER ..... CAMERA
2) NIGHT SHOT ..... OFF
3) COLOR SLOW SHUTTER ..... OFF

Preparations:

1) Set the zoom lens to the TELE end and expose a subject that is more than 500m away (subject with clear contrast such as building, etc.). (Nearby subjects less than 500m away should not be in the screen.)

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	6	01	13	Set the data, and press PAUSE button.
3				Place a ND filter on the lens so that the optimum image is obtain.
4	6	01	29	Set the data, and press PAUSE button.
5	6	02		Check that the data changes to "01". (Note4)

Note4: The adjustment data will be automatically input to page: F, address: 48 to 58.

Processing after Completing Adjustments:

Order	Page	Address	Data	Procedure
1	0	01	00	Set the data.
2				Turn off the power and turn on again.
3				Perform "Flange Back Check".

4. Flange Back Check

Subject	Siemens star (2.0m from the front of the lens) (Luminance : approx. 200 lux)
Measurement Point	Check operation on TV monitor
Measuring Instrument	
Specified Value	Focused at the TELE end and WIDE end.

Note1: The data of page: 0, address: 10 must be “00”.

Switch setting:

1) POWER ..... CAMERA
2) NIGHT SHOT ..... OFF
3) DIGITAL ZOOM (Menu display) ..... OFF
4) STEADY SHOT (Menu display) ..... OFF

Note2: When the auto focus is ON, the lens can be checked if it is focused or not by observing the data on the page 1 of the adjustment remote commander.
1) Select page: 0, address: 03, and set data: 0F.
2) Page 1 shows the state of the focus.

1 : 00 : XX
- Odd: Focused
- Even: Unfocused

Checking method:

1) Place the Siemens star 2.0m from the front of the lens.
2) To open the IRIS, decrease the luminous intensity to the Siemens star up to a point before noise appear on the image.
3) Shoot the Siemens star with the zoom TELE end.
4) Turn on the auto focus.
5) Check that the lens is focused (Note2).
6) Select page: 6, address: 21, and set data: 10.
7) Shoot the Siemens star with the zoom WIDE end.
8) Observe the TV monitor and check that the lens is focused.

Processing after Completing Adjustments:

1) Select page: 6, address: 21, and set data: 00.
2) Select page: 0, address: 03, and set data: 00.

5. Mechanical Shutter Adjustment RadarW

Adjustment Page	F
Adjustment Address	76 to 8F

Note1: The data of page: 0, address: 10 must be “00”.

Input method:

1) Select page: 0, address: 01, and set data: 01.
2) Input the following data to page: F, addresses: 76 to 8F.
   Note2: Press the PAUSE button of the adjustment remote commander each time to set the data.

Address	Data
76	40
77	00
78	34
79	00
7A	30
7B	00
7C	2A
7D	00
7E	28
7F	00
80	40
81	3A
82	31
83	31
84	35
85	1E
86	80
87	80
88	80
89	80
8A	80
8B	80
8C	03
8D	80
8E	80
8F	80

3) Select page: 0, address: 01, and set data: 00.

6. Black Defective CCD Adjustment RadarW

Subject	Clear chart (All white) (Note1) (Approx. 40cm from the front of the lens)
Adjustment Page	1E (Note2)
Adjustment Address	20 to 2F

Note1: Shoot the clear chart with the zoom WIDE end. And adjust the direction of the camera so that the whole of the screen is white.

Note2: When reading or writing the 1E page data, select page: 0, address: 10, and set data: 01, then select E page. The 1E page can be chosen by this data setting.
After reading or writing, reset the data of page: 0, address: 10 to "00".

Note3: This adjustment should be carried out upon completion of the following adjustment.
Flange Back Adjustment

Note4: Check that the data of page: 6, address: 02 is "00". If not, set data: 00 to this address, and press the PAUSE button.

Switch setting:

1) POWER ..... CAMERA
2) NIGHT SHOT ..... OFF

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	0	10	00	Set the data.
3	6	2C	01	Set the data.
4	6	9C	01	Set the data.
5	6	90	80	Set the data.
6	6	91	01	Set the data.
7	6	92	00	Set the data.
8	6	93	01	Set the data.
9	6	01	79	Set the data, and press PAUSE button.
10	6	01	8D	Set the data, and press PAUSE button.
11	6	02		Check that the data changes to "01". (Note5)

Note5: The adjustment data will be automatically input to page: 1E, address: 20 to 2F.

Processing after Completing Adjustments:

Order	Page	Address	Data	Procedure
1	0	10	00	Set the data.
2	6	01	00	Set the data, and press PAUSE button.
3	6	2C	00	Set the data.
4	6	9C	00	Set the data.
5	6	90	00	Set the data.
6	6	91	00	Set the data.
7	6	92	00	Set the data.
8	6	93	00	Set the data.
9	0	01	00	Set the data.

7. Picture Frame Setting

Subject	Color bar chart (Color reproduction adjustment frame) (1.5m from the front of the lens)
Measurement Point	Video output terminal
Measuring Instrument	Oscilloscope and TV monitor
Specified Value	A=B, C=D, E=F

Note1: The following adjustments should be carried out upon completion of "Flange back adjustment".

Note2: The data of page: 0, address: 10 must be "00".

Switch setting:

1) POWER ..... CAMERA
2) NIGHT SHOT ..... OFF
3) DIGITAL ZOOM (Menu display) ..... OFF
4) STEADY SHOT (Menu display) ..... OFF

Setting method:

1) Adjust the zoom and the camera direction, and set to the specified position.
2) Mark the position of the picture frame on the monitor display, and adjust the picture frame to this position in following adjustments using "Color reproduction adjustment frame".

Check on the oscilloscope

1. Horizontal period

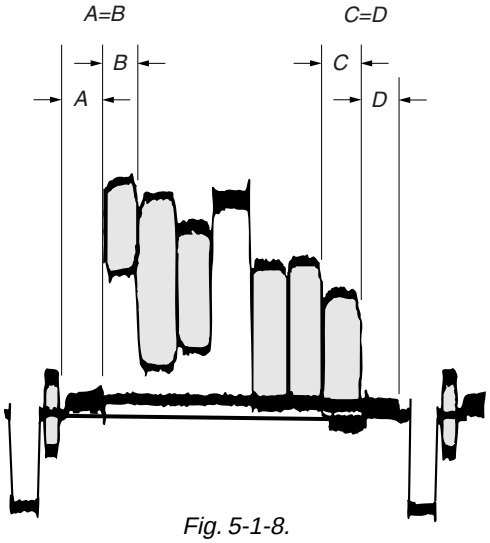


Fig. 5-1-8.

2. Vertical period

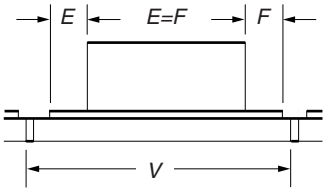


Fig. 5-1-9.

Check on the monitor TV (Underscanned mode)

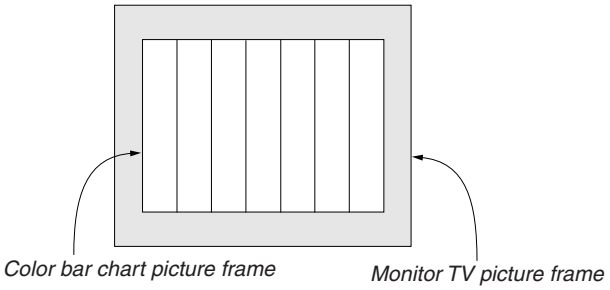


Fig. 5-1-10.

8. Color Reproduction Adjustment

Adjust the color Separation matrix coefficient so that proper color reproduction is produced.

Subject	Color bar chart (Color reproduction adjustment frame)
Measurement Point	Video output terminal
Measuring Instrument	Vectorscope
Adjustment Page	F
Adjustment Address	37, 39, 40, 41
Specified Value	All color luminance points should settle within each color reproduction frame.

Note1: The data of page: 0, address: 10 must be “00”.
Note2: NTSC model: DCR-TRV740/TRV840
PAL model: DCR-TRV738E/TRV740E

Switch setting:

1) POWER ..... CAMERA
2) NIGHT SHOT ..... OFF
3) DIGITAL ZOOM (Menu display) ..... OFF
4) STEADY SHOT (Menu display) ..... OFF

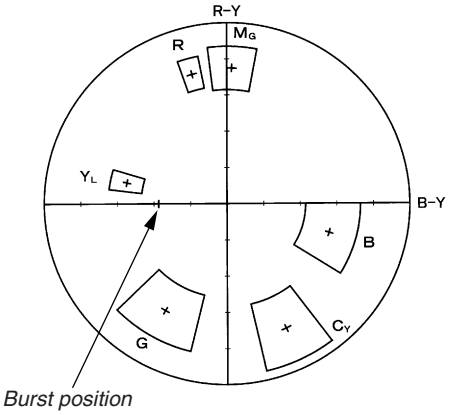
Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 6, address: 9D, set data: 17.
3) Select page: 6, address: 01, set data: 3D, and press the PAUSE button.
4) Select page: F, address: F0, set following data, and press the PAUSE button.
   37 (NTSC), B7 (PAL)
5) Adjust the GAIN and PHASE of the vectorscope, and adjust the burst luminance point to the burst position of the color reproduction frame.
6) Change the data of page: F, address: 37, 39, 40 and 41, settle each color luminance point in each color reproduction frame.
   Note: Be sure to press the PAUSE button of the adjustment remote commander before changing the addresses. If not, the new data will not be written to the memory.

Processing after Completing Adjustments:

1) Select page: 6, address: 01, set data: 00, and press the PAUSE button.
2) Select page: 6, address: 9D, and set data: 00.
3) Select page: 0, address: 01, and set data: 00.

For NTSC model



For PAL model

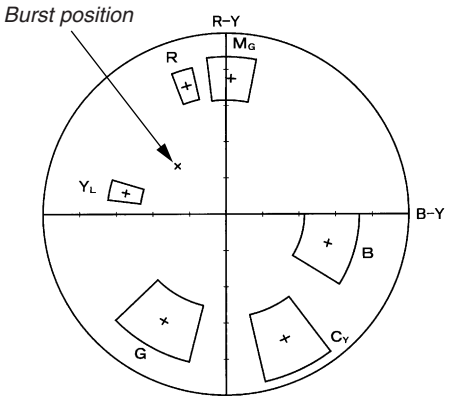


Fig. 5-1-11.

9. Auto White Balance & LV Standard Data Input RadarW

Adjust the white balance reference at 3200K, and adjust the normal coefficient of the light value.

Subject	Clear chart (Color reproduction adjustment frame)
Measurement Point	Display data of page 1 (Note5)
Measuring Instrument	Adjustment remote commander
Adjustment Page	F
Adjustment Address	1A, 1B, 30 to 33
Specified Value	0FF0 to 1010

Note1: This adjustment should be carried out upon completion of "Color reproduction adjustments".

Note2: After the power is turned on, this adjustment can be done only once.

Note3: The data of page: 0, address: 10 must be "00".

Note4: Check that the data of page: 6, address: 02 is "00". If not, set data: 00 to this address, and press the PAUSE button.

Note5: Displayed data of page 1 of the adjustment remote commander.

1 : XX : XX
└── Display data

Switch setting:

1) POWER ..... CAMERA
2) NIGHT SHOT ..... OFF
3) DIGITAL ZOOM (Menu display) ..... OFF
4) STEADY SHOT (Menu display) ..... OFF

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	6	16	02	Set the data.
3				Wait for 2 sec.
4	6	01	11	Set the data, and press PAUSE button.
5	6	01	0D	Set the data, and press PAUSE button.
6	6	02		Check that the data changes to "01". (Note6)
7	0	03	1E	Set the data.
8	1			Check that the display data (Note5) satisfies the specified value.

Note6: The adjustment data will be automatically input to page: F, address: 1A, 1B, 30 to 33.

Processing after Completing Adjustments

Order	Page	Address	Data	Procedure
1	6	01	00	Set the data, and press PAUSE button.
2	6	16	00	Set the data.
3	0	03	00	Set the data.
4	0	01	00	Set the data.
5				Perform "Auto White Balance Adjustment".

10. Auto White Balance Adjustment RadarW

Adjust to the proper auto white balance output data.
If it is not correct, auto white balance and color reproducibility will be poor.

Subject	Clear chart (Color reproduction adjustment frame)
Filter	Filter C14 for color temperature correction
Measurement Point	Display data of page 1 (Note4)
Measuring Instrument	Adjustment remote commander
Adjustment Page	F
Adjustment Address	34, 35
Specified Value	R ratio: 2BD8 to 2CD8 B ratio: 5970 to 5A70

Note1: This adjustment should be carried out upon completion of "Auto White Balance & LV Standard Data Input".
Note2: After the power is turned on, this adjustment can be done only once.
Note3: The data of page: 0, address: 10 must be "00".
Note4: Displayed data of page 1 of the adjustment remote commander.

1 : XX : XX
└── Display data

Switch setting:

1) POWER ..... CAMERA
2) NIGHT SHOT ..... OFF
3) DIGITAL ZOOM (Menu display) ..... OFF
4) STEADY SHOT (Menu display) ..... OFF

Adjusting method:

Order	Page	Address	Data	Procedure
1				Place the C14 filter for color temperature correction on the lens.
2	0	01	01	Set the data.
3	F	44		Write down the data.
4	F	44	2C	Set the data, and press PAUSE button.
5	F	45		Write down the data.
6	F	45	58	Set the data, and press PAUSE button.
7	F	46		Write down the data.
8	F	46	59	Set the data, and press PAUSE button.
9	F	47		Write down the data.
10	F	47	F0	Set the data, and press PAUSE button.
11	6	01	83	Set the data, and press PAUSE button.
12	6	01	81	Set the data, and press PAUSE button.
13	6	02		Check that the data changes to "01". (Note5)
14	6	01	3F	Set the data, and press PAUSE button.
15	0	03	04	Set the data.
16	1			Check that the display data (Note4) satisfies the R ratio specified value.
17	0	03	05	Set the data.
18	1			Check that the display data (Note4) satisfies the B ratio specified value.

Note5: The adjustment data will be automatically input to page: F, address: 34, 35.

Processing after Completing Adjustments:

Order	Page	Address	Data	Procedure
1	6	01	00	Set the data, and press PAUSE button.
2	F	44		Set the data that is written down at step 3, and press PAUSE button.
3	F	45		Set the data that is written down at step 5, and press PAUSE button.
4	F	46		Set the data that is written down at step 7, and press PAUSE button.
5	F	47		Set the data that is written down at step 9, and press PAUSE button.
6	0	03	00	Set the data.
7	0	01	00	Set the data.

11. White Balance Check RadarW

Subject	Clear chart (Color reproduction adjustment frame)
Filter	Filter C14 for color temperature correction ND filter 1.0 and 0.4 and 0.1
Measurement Point	Video output terminal
Measuring Instrument	Vectorscope
Specified Value	Fig. 5-1-12. A to B

Note: The data of page: 0, address: 10 must be "00".

Switch setting:

1) POWER ..... CAMERA
2) NIGHT SHOT ..... OFF
3) DIGITAL ZOOM (Menu display) ..... OFF
4) STEADY SHOT (Menu display) ..... OFF

Checking method:

Order	Page	Address	Data	Procedure
				Indoor white balance check
1				Check that the lens is not covered with either filter.
2	6	01	0F	Set the data, and press PAUSE button.
3				Check that the center of the white luminance point is within the circle shown Fig. 5-1-12. A.
4	6	01	00	Set the data, and press PAUSE button.
				Outdoor white balance check
5				Place the C14 filter on the lens.
6	6	01	3F	Set the data, and press PAUSE button.
7				Check that the center of the white luminance point is within the circle shown Fig. 5-1-12. B.
8				Remove the C14 filter.
				LV data check
9				Place the ND filter 1.5 (1.0 + 0.1 + 0.4) on the lens.
10	6	01	00	Set the data, and press PAUSE button.
11	0	03	06	Set the data.
12	1			Check that the display data (Note) satisfies the specified value. Specified value: 8000 to 8BC0

Note: Displayed data of the adjustment remote commander.

1 : XX : XX
└ Display data

Processing after Completing Adjustments

Order	Page	Address	Data	Procedure
1	6	01	00	Set the data, and press PAUSE button.
2	0	03	00	Set the data.

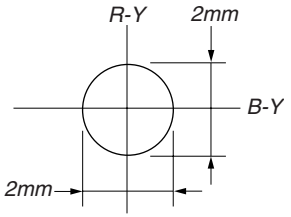


Fig. 5-1-12. (A)

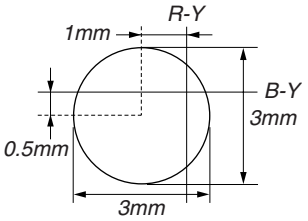


Fig. 5-1-12. (B)

12. Steady Shot Check RadarW

Precautions on the Parts Replacement

There are two types of repair parts.

Type A: ENC03JA
Type B: ENC03JB

Replace the broken sensor with a same type sensor. If replace with other type parts, the image will vibrate up and down or left and right during hand-shake correction operations.

Precautions on Angular Velocity Sensor

The sensor incorporates a precision oscillator. Handle it with care as if it dropped, the balance of the oscillator will be disrupted and operations will not be performed properly.

Subject	Arbitrary
Measurement Point	Display data of page 1 (Note1)
Measuring Instrument	Adjustment remote commander
Specified Value	2B00 to 4B00

Note1: Displayed data of the adjustment remote commander.

1 : XX : XX
└──── Display data

Note2: The data of page: 0, address: 10 must be “00”.

Switch setting:

1) STEADY SHOT (Menu display) ..... ON
2) ZOOM ..... TELE end

Adjusting method:

Order	Page	Address	Data	Procedure
				Pitch sensor check (SI-032 board SE301)
1	0	03	11	Set the data.
2	1			Check that the display data (Note1) satisfies the specified value. Specified value: 2B00 to 4B00
				Yaw sensor check (SI-032 board SE302)
3	0	03	12	Set the data.
4	1			Check that the display data (Note1) satisfies the specified value. Specified value: 2B00 to 4B00

Processing after Completing Adjustments

Order	Page	Address	Data	Procedure
1	0	03	00	Set the data.
2				Move the camcorder, and check that the steady shot operations have been performed normally.

1-4. ELECTRONIC VIEWFINDER SYSTEM ADJUSTMENT

Note1: When replacing the LCD unit, be careful to prevent damages caused by static electricity.
Note2: Before performing the adjustments, check the data of page: 0, address: 10 is "00". If not, set data: 00 to this address.
Note3: Switch setting:
LCD panel ..... Close
Note4: NTSC model: DCR-TRV740/TRV840
PAL model: DCR-TRV738E/TRV740E

[Adjusting connector]

Most of the measuring points for adjusting the viewfinder system are concentrated in CN1108 of VC-278 board.
Connect the Measuring Instruments via the CPC-13 jig (J-6082-443-A).
The following table shows the Pin No. and signal name of CN1108.

Pin No.	Signal Name	Pin No.	Signal Name
1	REG GND	11	VCO
2	N. C.	12	EVF VG
3	BPF MONI	13	RF SWP
4	N. C.	14	N. C.
5	PB RF	15	CAP FG
6	REG GND	16	RF MON
7	N. C.	17	N. C.
8	RF SWP	18	REG GND
9	N. C.	19	REG GND
10	N. C.	20	REG GND

Table 5-1-13.

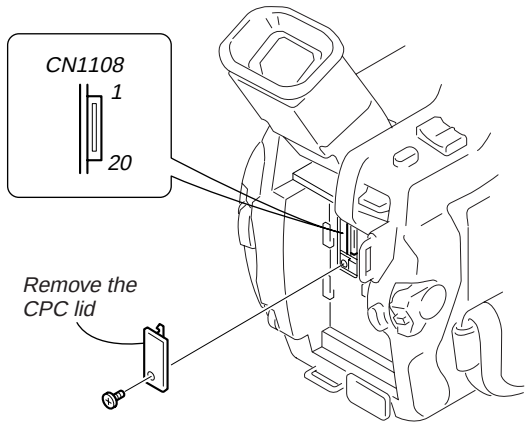


Fig. 5-1-13.

1. VCO Adjustment (VC-278 board)

Set the VCO free-run frequency. If deviated, the EVF screen will be blurred.

Mode	Camera
Subject	Arbitrary
Measurement Point	Pin ⑪ of CN1108 (VCO)
Measuring Instrument	Frequency counter
Adjustment Page	C
Adjustment Address	51, 52
Specified Value	f = 15734 ± 30Hz (NTSC) f = 15625 ± 30Hz (PAL)

Note1: The data of page: 0, address: 10 must be "00".

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	C	51		Change the data and set the VCO frequency (f) to the specified value.
3	C	51		Press PAUSE button.
4	C	51		Read the data, and this data is named D_{51}.
5				Convert D_{51} to decimal notation, and obtain D_{51}'. (Note1)
6				Calculate D_{52}' using following equations (Decimal calculation) [NTSC model] When $D_{51}' \leqq 236$ $D_{52}' = D_{51}'+19$ When $D_{51}' > 236$ $D_{52}' = 255$ [PAL model] When $D_{51}' \geqq 19$ $D_{52}' = D_{51}'-19$ When $D_{51}' < 19$ $D_{52}' = 00$
7				Convert D_{52}' to a hexadecimal number, and obtain D_{52}. (Note)
8	C	52	D_{52}	Set the data, and press PAUSE button.
9	0	01	00	Set the data.

Note2: Refer to "Table 5-4-1. Hexadecimal-decimal Conversion Table".

2. RGB AMP Adjustment (VC-278 board)

Set the D range of the RGB driver used to drive the LCD to the specified value. If deviated, the LCD screen will become blackish or saturated (whitish).

Mode	Camera
Subject	Arbitrary
Measurement Point	Pin ⑫ of CN1108 (EVF VG)
Measuring Instrument	Oscilloscope
Adjustment Page	C
Adjustment Address	54
Specified Value	A = 7.50 ± 0.10V (NTSC) A = 7.52 ± 0.10V (PAL)

Note: The data of page: 0, address: 10 must be “00”.

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	C	54		Change the data and set the voltage (A) between the reversed waveform pedestal and non-reversed waveform pedestal to the specified value.
3	C	54		Press PAUSE button.
4	0	01	00	Set the data.

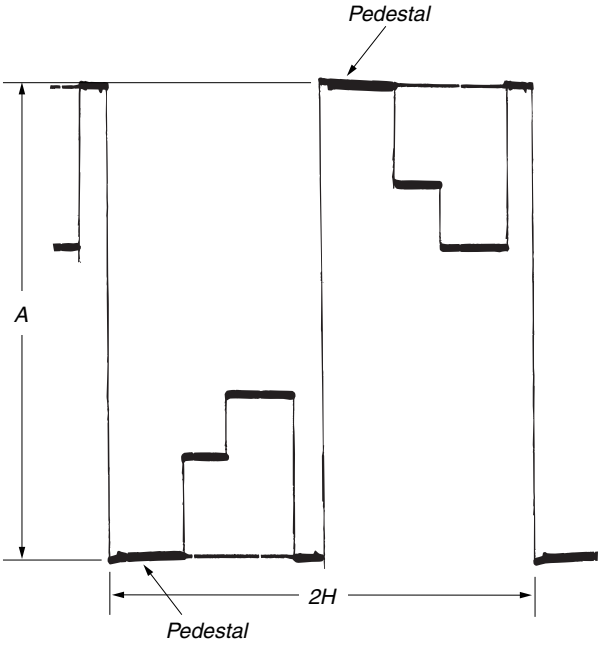


Fig. 5-1-14.

3. Contrast Adjustment (VC-278 board)

Set the level of the VIDEO signal for driving the LCD to the specified value. If deviated, the screen image will be blackish or saturated (whitish).

Mode	Camera
Subject	Arbitrary
Measurement Point	Pin ⑫ of CN1108 (EVF VG)
Measuring Instrument	Oscilloscope
Adjustment Page	C
Adjustment Address	58
Specified Value	A = 2.49 ± 0.10V (NTSC) A = 2.42 ± 0.10V (PAL)

Note: The data of page: 0, address: 10 must be “00”.

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	C	58		Change the data and set the voltage (A) between the 100 IRE and 0 IRE (pedestal) to the specified value. (The data should be “00” to “7F”.)
3	C	58		Press PAUSE button.
4	0	01	00	Set the data.

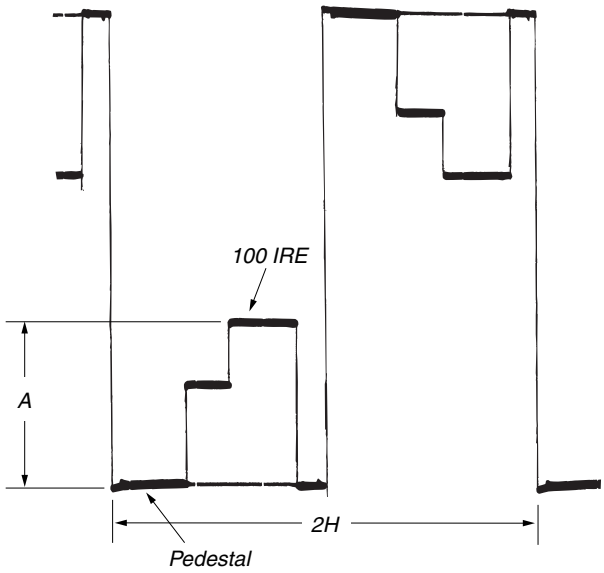


Fig. 5-1-15.

1-5. LCD SYSTEM ADJUSTMENT

Note1: The back light (fluorescent tube) is driven by a high voltage AC power supply. Therefore, do not touch the back light holder to avoid electrical shock.
Note2: When replacing the LCD unit, be careful to prevent damages caused by static electricity.
Note3: Before performing the adjustments, check the data of page: 0, address: 10 is "00". If not, set data: 00 to this address.
Note4: Set the LCD BRIGHT (Menu display) to the center.
Set the LCD COLOR (Menu display) to the center.

[Adjusting connector]

Most of the measuring points for adjusting the LCD system are concentrated in CN5502 of the PD-156/160 board. Connect the measuring instruments via the multi CPC jig (J-6082-311-A). The following table shows the Pin No. and signal name of CN5502.

PD-156 board

Pin No.	Signal Name	Pin No.	Signal Name
1	VB	2	XVD OUT
3	VG	4	PANEL COM
5	VR	6	PANEL ID
7	C-SYNC/XHD	8	XHD OUT
9	GND	10	GND

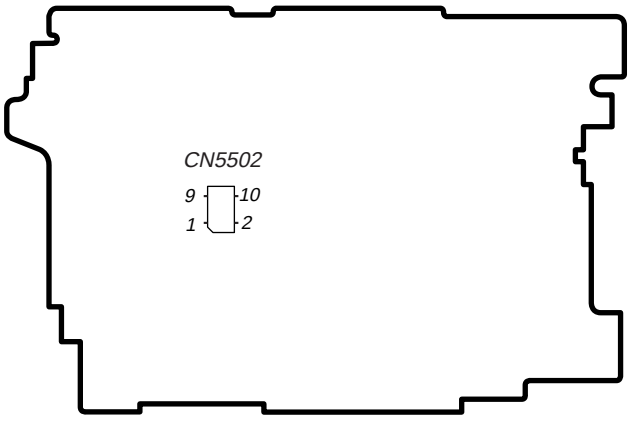
Table 5-1-14.

PD-160 board

Pin No.	Signal Name	Pin No.	Signal Name
1	VB	2	XVD OUT
3	VG	4	PSIG
5	VR	6	MAKER CHECK
7	XHD	8	XHD OUT
9	GND	10	GND

Table 5-1-15.

PD-156/160 board



1-5-1. LCD Type Check

By measuring the resistor value between Pin ⑥ of CN5502 and GND, the type of LCD can be discriminated.

Resistor value	LCD type	PD board	DCR-
2.2kΩ	2.5 LCD TYPE SH (123k)	PD-156	TRV738E TRV740E *1
6.8kΩ	3.5 LCD TYPE CA (123k)	PD-156	TRV840
22kΩ	2.5 LCD TYPE SO (61k)	PD-160	TRV740 TRV740E *2
47kΩ	3.5 LCD TYPE SO (123k)	PD-160	TRV840

*1: AEP/EE/NE/RU model
*2: E/AUS/HK/CH/JE model

When the type of LCD is "LCD TYPE CA" or "LCD TYPE SH", perform "1-5-2. LCD SYSTEM ADJUSTMENT (PD-156 board)"
When the type of LCD is "LCD TYPE SO", perform "1-5-3. LCD SYSTEM ADJUSTMENT (PD-160 board)"

- Abbreviation
  HK : Hong Kong model
  AUS : Australian model
  CH : Chinese model
  JE : Tourist model
  EE : East European model
  NE : North European model
  RU : Russian model

1-5-2. LCD SYSTEM ADJUSTMENT (PD-156 board)

1. VCO Adjustment (PD-156 board)

Set the VCO free-run frequency. If deviated, the LCD screen will be blurred.

Mode	VTR stop
Signal	No signal
Measurement Point	Pin ⑧ of CN5502 (XHD OUT)
Measuring Instrument	Frequency counter
Adjustment Page	C
Adjustment Address	61, 62
Specified Value	f = 15734 ± 30Hz (NTSC) f = 15625 ± 30Hz (PAL)

Note1: NTSC model: DCR-TRV840
PAL model: DCR-TRV738E/TRV740E
Note2: Refer to "LCD Type Check" for the discrimination of the LCD type.
Note3: The data of page: 0, address: 10 must be "00".

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	C	61		Change the data and set the VCO frequency (f) to the specified value.
3	C	61		Press PAUSE button.
4	C	61		Read the data, and this data is named D_{61}.
5				Convert D_{61} to decimal notation, and obtain D_{61}'. (Note2)
6				Calculate D_{62}' using following equations (Decimal calculation) [NTSC 3.5 LCD TYPE CA] When $D_{61}' \leqq 252$ $D_{62}'=D_{61}'+3$ When $D_{61}'>252$ $D_{62}'=255$ [PAL 2.5 LCD TYPE SH] When $D_{61}' \geqq 20$ $D_{62}'=D_{61}'-20$ When $D_{61}'< 20$ $D_{62}'=0$
7				Convert D_{62}' to a hexadecimal number, and obtain D_{62}. (Note4)
8	C	62	D_{62}	Set the data, and press PAUSE button.
9	0	01	00	Set the data.

Note4: Refer to "Table 5-4-1. Hexadecimal-decimal Conversion Table".

2. RGB AMP Adjustment (PD-156 board)

Set the D range of the RGB decoder used to drive the LCD to the specified value. If deviated, the LCD screen will become blackish or saturated (whitish).

Mode	VTR stop
Signal	No signal
Measurement Point	Pin ③ of CN5502 (VG) Ext. trigger: Pin ④ of CN5502 (PANEL COM)
Measuring Instrument	Oscilloscope
Adjustment Page	C
Adjustment Address	64
Specified Value	NTSC 3.5 LCD TYPE CA: A = 3.22 ± 0.05V PAL 2.5 LCD TYPE SH: A = 3.55 ± 0.05V

Note1: NTSC model: DCR-TRV840
PAL model: DCR-TRV738E/TRV740E
Note2: Refer to "LCD Type Check" for the discrimination of the LCD type.
Note3: The data of page: 0, address: 10 must be "00".

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	C	64		Change the data and set the voltage (A) between the reversed waveform pedestal and non-reversed waveform pedestal to the specified value. (The data should be "00" to "3F".)
3	C	64		Press PAUSE button.
4	0	01	00	Set the data.

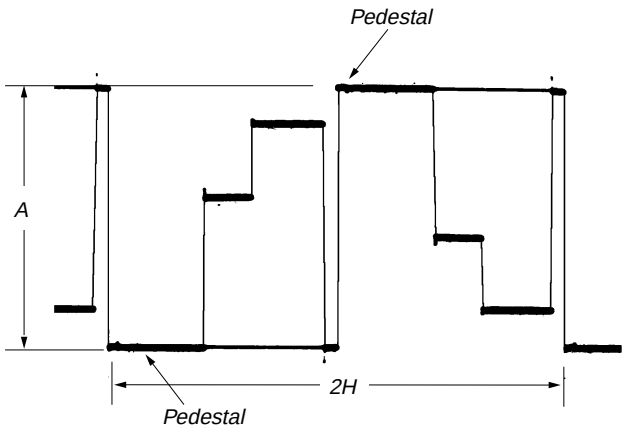


Fig. 5-1-16.

3. Contrast Adjustment (PD-156 board)

Set the level of the VIDEO signal for driving the LCD to the specified value. If deviated, the screen image will be blackish or saturated (whitish).

Mode	VTR stop
Signal	No signal
Measurement Point	Pin ③ of CN5502 (VG) Ext. trigger: Pin ④ of CN5502 (PANEL COM)
Measuring Instrument	Oscilloscope
Adjustment Page	C
Adjustment Address	69
Specified Value	NTSC 3.5 LCD TYPE CA: A = 3.18 ± 0.05V PAL 2.5 LCD TYPE SH: A = 3.19 ± 0.05V

Note1: NTSC model: DCR-TRV840
PAL model: DCR-TRV738E/TRV740E
Note2: Refer to "LCD Type Check" for the discrimination of the LCD type.
Note3: The data of page: 0, address: 10 must be "00".

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	C	69		Change the data and set the voltage (A) between the 100 IRE and 0 IRE (pedestal) to the specified value. (The data should be "00" to "7F".)
3	C	9		Press PAUSE button.
4	0	01	00	Set the data.

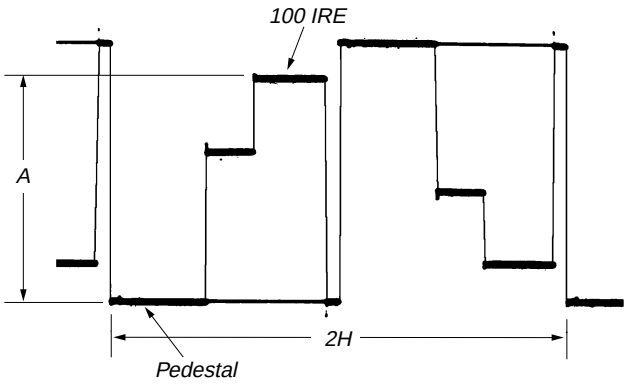


Fig. 5-1-17.

4. COM AMP Adjustment (PD-156 board)

Set the common electrode drive signal level of LCD to the specified value.

Mode	VTR stop
Signal	No signal
Measurement Point	Pin ④ of CN5502 (PANEL COM)
Measuring Instrument	Oscilloscope
Adjustment Page	C
Adjustment Address	66
Specified Value	NTSC 3.5 LCD TYPE CA: A = 5.80 ± 0.05V PAL 2.5 LCD TYPE SH: A = 6.16 ± 0.05V

Note1: NTSC model: DCR-TRV840
PAL model: DCR-TRV738E/TRV740E
Note2: Refer to "LCD Type Check" for the discrimination of the LCD type.
Note3: The data of page: 0, address: 10 must be "00".

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	C	66		Change the data and set the PANEL COM signal level (A) to the specified value.
3	C	66		Press PAUSE button.
4	0	01	00	Set the data.

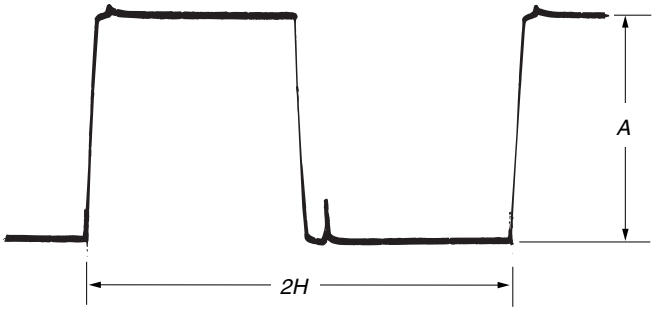


Fig. 5-1-18.

5. V-COM Adjustment (PD-156 board)

Set the DC bias of the common electrode drive signal of LCD to the specified value.
If deviated, the LCD display will move, producing flicker and conspicuous vertical lines.

Mode	VTR stop
Signal	No signal
Measurement Point	Check on LCD display
Measuring Instrument	
Adjustment Page	C
Adjustment Address	63
Specified Value	The brightness difference between the section A and section B is minimum.

Note1: This adjustment should be carried out upon completion of the following adjustments.
RGB AMP Adjustment
Contrast Adjustment
COM AMP Adjustment

Note2: The data of page: 0, address: 10 must be “00”.

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	C	63		Change the data so that the brightness of the section A and that of the section B is equal.
3	C	63		Subtract 8 from the data.
4	C	63		Press PAUSE button.
5	0	01	00	Set the data.

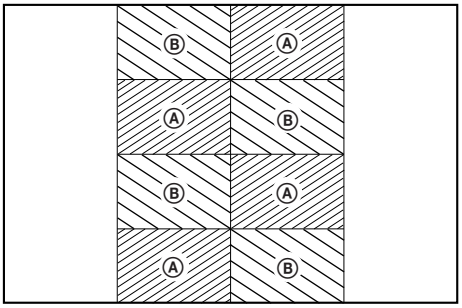


Fig. 5-1-19.

6. White Balance Adjustment (PD-156 board)

Correct the white balance.
If deviated, the reproduction of the LCD screen may degenerate.

Mode	VTR stop
Signal	No signal
Measurement Point	Check on LCD screen
Measuring Instrument	
Adjustment Page	C
Adjustment Address	67, 68
Specified Value	The LCD screen should not be colored.

Note1: Check the white balance only when replacing the following parts. If necessary, adjust them.
1. LCD panel
2. Light induction plate
3. IC5501

Note2: The data of page: 0, address: 10 must be “00”.

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	C	67		Set the following data, and press PAUSE button. 55 (NTSC 3.5 LCD TYPE CA) 84 (PAL 2.5 LCD TYPE SH)
3	C	68		Set the following data, and press PAUSE button. 3F (NTSC 3.5 LCD TYPE CA) 5F (PAL 2.5 LCD TYPE SH)
4	C	68		Check that the LCD screen is not colored. If not colored, proceed to step 10.
5	C	67		Change the data so that the LCD screen is not colored.
6	C	67		Press PAUSE button.
7	C	68		Change the data so that the LCD screen is not colored.
8	C	68		Press PAUSE button.
9	C	68		If the LCD screen is colored, repeat steps 5 to 9.
10	0	01	00	Set the data.

1-5-3. LCD SYSTEM ADJUSTMENT (PD-160 board)

1. VCO Adjustment (PD-160 board)

Set the VCO free-run frequency. If deviated, the LCD screen will be blurred.

Mode	VTR stop
Signal	No signal
Measurement Point	Pin ⑧ of CN5502 (XHD OUT)
Measuring Instrument	Frequency counter
Adjustment Page	C
Adjustment Address	61, 62
Specified Value	f = 15734 ± 30Hz (NTSC) f = 15625 ± 30Hz (PAL)

Note1: NTSC model: DCR-TRV740/TRV840
PAL model: DCR-TRV740E
Note2: The data of page: 0, address: 10 must be "00".

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	C	61		Change the data and set the VCO frequency (f) to the specified value.
3	C	61		Press PAUSE button.
4	C	61		Read the data, and this data is named D_{61}.
5				Convert D_{61} to decimal notation, and obtain D_{61}'. (Note2)
6				Calculate D_{62}' using following equations (Decimal calculation) [NTSC 2.5 LCD] When $D_{61}' \leqq 238$ $D_{62}' = D_{61}' + 17$ When $D_{61}' > 238$ $D_{62}' = 255$ [NTSC 3.5 LCD] When $D_{61}' \leqq 247$ $D_{62}' = D_{61}' + 8$ When $D_{61}' > 247$ $D_{62}' = 255$ [PAL 2.5 LCD] When $D_{61}' \geqq 17$ $D_{62}' = D_{61}' - 17$ When $D_{61}' < 17$ $D_{62}' = 0$
7				Convert D_{62}' to a hexadecimal number, and obtain D_{62}. (Note3)
8	C	62	D_{62}	Set the data, and press PAUSE button.
9	0	01	00	Set the data.

Note3: Refer to "Table 5-4-1. Hexadecimal-decimal Conversion Table".

2. PSIG Gray Adjustment (PD-160 board)

Set the uniformity improvement signal to an appropriate level.

Mode	VTR stop
Signal	No signal
Measurement Point	Pin ④ of CN5502 (PSIG)
Measuring Instrument	Oscilloscope
Adjustment Page	C
Adjustment Address	66
Specified Value	A = 5.00 ± 0.1V

Note: The data of page: 0, address: 10 must be "00".

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	C	66		Change the data and set the PSIG signal level (A) to the specified value. (The data should be "00" to "7F")
3	C	66		Press PAUSE button.
4	0	01	00	Set the data.

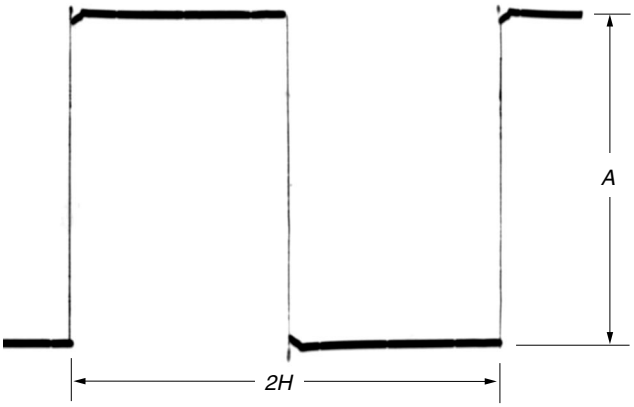


Fig. 5-1-20.

3. RGB AMP Adjustment (PD-160 board)

Set the D range of the RGB decoder used to drive the LCD to the specified value. If deviated, the LCD screen will become blackish or saturated (whitish).

Mode	VTR stop
Signal	No signal
Measurement Point	Pin ③ of CN5502 (VG) Ext. trigger: Pin ④ of CN5502 (PSIG)
Measuring Instrument	Oscilloscope
Adjustment Page	C
Adjustment Address	64
Specified Value	NTSC 2.5 LCD: A = 7.68 ± 0.05V NTSC 3.5 LCD: A = 7.48 ± 0.05V PAL 2.5 LCD: A = 7.62 ± 0.05V

Note1: NTSC model: DCR-TRV740/TRV840
PAL model: DCR-TRV740E
Note2: The data of page: 0, address: 10 must be “00”.

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	C	64		Change the data and set the voltage (A) between the reversed waveform pedestal and non-reversed waveform pedestal to the specified value.
3	C	64		Press PAUSE button.
4	0	01	00	Set the data.

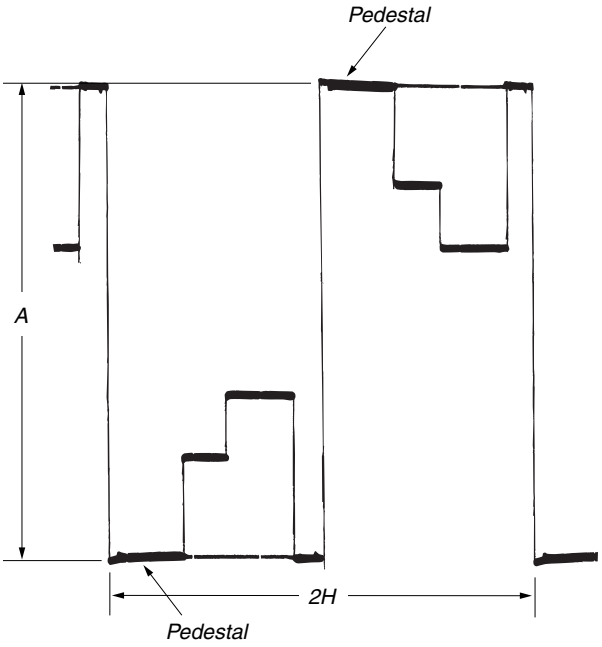


Fig. 5-1-21.

4. Black Limit Adjustment (PD-160 board)

Set the dynamic range of the LCD driver to an appropriate level. If deviated, the LCD screen will become blackish or saturated (whitish).

Mode	VTR stop
Signal	No signal
Measurement Point	Pin ④ of CN5502 (PSIG)
Measuring Instrument	Oscilloscope
Adjustment Page	C
Adjustment Address	65
Specified Value	A = 8.30 ± 0.08V

Note: The data of page: 0, address: 10 must be “00”.

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	3	C4	61	Set the data.
3	3	C5		Set the following data. 58 (NTSC), 50 (PAL)
4	C	65		Change the data and set the PSIG signal amplitude (A) to the specified value. (The data should be “00” to “0F”.)
5	C	65		Press PAUSE button.
6	3	C4	00	Set the data.
7	3	C5	00	Set the data.
8	0	01	00	Set the data.
9				Check that the specified value of “RGB AMP Adjustment” is satisfied.

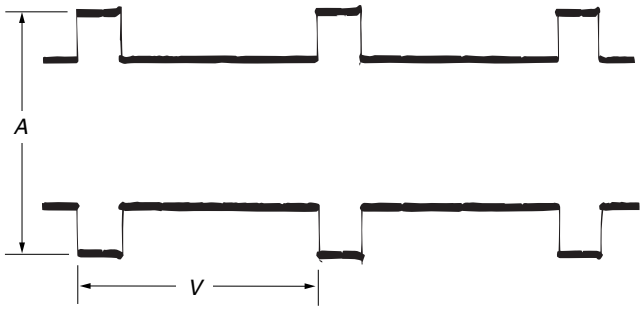


Fig. 5-1-22.

5. Contrast Adjustment (PD-160 board)

Set the level of the VIDEO signal for driving the LCD to the specified value. If deviated, the screen image will be blackish or saturated (whitish).

Mode	VTR stop
Signal	No signal
Measurement Point	Pin ③ of CN5502 (VG) Ext. trigger: Pin ④ of CN5502 (PSIG)
Measuring Instrument	Oscilloscope
Adjustment Page	C
Adjustment Address	69
Specified Value	NTSC 2.5 LCD: A = 2.72 ± 0.05V NTSC 3.5 LCD: A = 2.60 ± 0.05V PAL 2.5 LCD: A = 3.19 ± 0.05V

Note1: NTSC model: DCR-TRV740/TRV840
PAL model: DCR-TRV740E
Note2: The data of page: 0, address: 10 must be "00".

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	C	69		Change the data and set the voltage (A) between the 100 IRE and 0 IRE (pedestal) to the specified value. (The data should be "00" to "7F".)
3	C	69		Press PAUSE button.
4	0	01	00	Set the data.

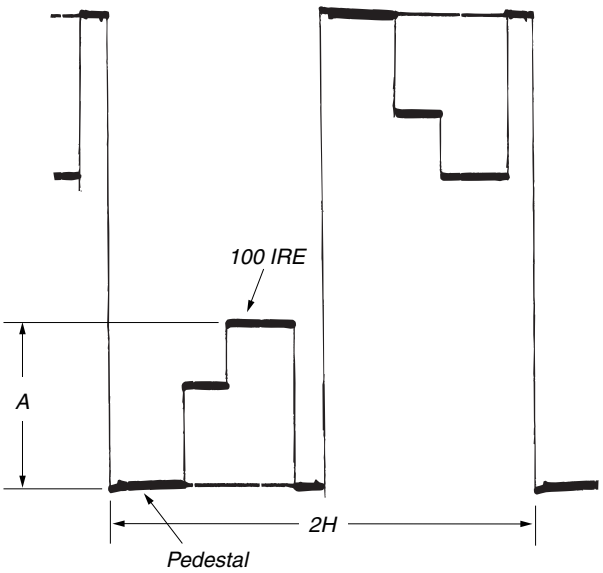


Fig. 5-1-23.

6. Center Level Adjustment (PD-160 board)

Set the video signal center level of LCD panel to an appropriate level.

Mode	VTR stop
Signal	No signal
Measurement Point	Pin ③ of CN5502 (VG)
Measuring Instrument	Digital voltmeter
Adjustment Page	C
Adjustment Address	6A
Specified Value	A = 7.00 ± 0.03Vdc

Note: The data of page: 0, address: 10 must be "00".

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	C	6A		Change the data and set the DC voltage (A) to the specified value. (The data should be "00" to "7F".)
3	C	6A		Press PAUSE button.
4	0	01	00	Set the data.

7. V-COM Adjustment (PD-160 board)

Set the DC bias of the common electrode drive signal of LCD to the specified value.
If deviated, the LCD display will move, producing flicker and conspicuous vertical lines.

Mode	VTR stop
Signal	No signal
Measurement Point	Check on LCD display
Measuring Instrument	
Adjustment Page	C
Adjustment Address	63
Specified Value	The brightness difference between the section A and section B is minimum.

Note1: This adjustment should be carried out upon completion of the following adjustments.
RGB AMP Adjustment
Black Limit Adjustment
Contrast Adjustment
Center Level Adjustment

Note2: The data of page: 0, address: 10 must be “00”.

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	C	63		Change the data so that the brightness of the section A and that of the section B is equal. (The data should be “00” to “3F”.)
3	C	63		Subtract 2 from the data.
4	C	63		Press PAUSE button.
5	0	01	00	Set the data.

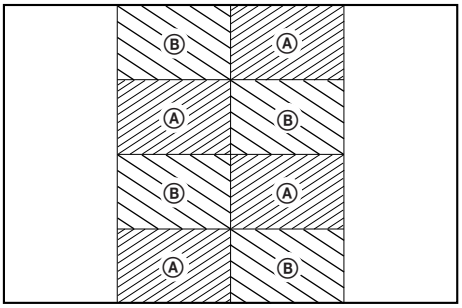


Fig. 5-1-24.

8. White Balance Adjustment (PD-160 board)

Correct the white balance.
If deviated, the reproduction of the LCD screen may degenerate.

Mode	VTR stop
Signal	No signal
Measurement Point	Check on LCD screen
Measuring Instrument	
Adjustment Page	C
Adjustment Address	67, 68
Specified Value	The LCD screen should not be colored.

Note1: Check the white balance only when replacing the following parts. If necessary, adjust them.
1. LCD panel
2. Light induction plate
3. IC5501

Note2: The data of page: 0, address: 10 must be “00”.

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	C	67		Set the following data, and press PAUSE button. 7E (NTSC 2.5 LCD) 7E (NTSC 3.5 LCD) 81 (PAL 2.5 LCD)
3	C	68		Set the following data, and press PAUSE button. 6C (NTSC 2.5 LCD) 78 (NTSC 3.5 LCD) 6F (PAL 2.5 LCD)
4	C	68		Check that the LCD screen is not colored. If not colored, proceed to step 10.
5	C	67		Change the data so that the LCD screen is not colored.
6	C	67		Press PAUSE button.
7	C	68		Change the data so that the LCD screen is not colored.
8	C	68		Press PAUSE button.
9	C	68		If the LCD screen is colored, repeat steps 5 to 9.
10	0	01	00	Set the data.

5-2. MECHANISM SECTION ADJUSTMENT

Mechanism Section adjustments, checks, and replacement of mechanism parts, refer to the separate volume "8mm Video Mechanism Adjustment Manual M2000 Mechanism".

2-1. Hi8/STANDARD 8 MODE

Note1: Before performing the adjustments, check the data of page: 0, address: 10 is "00". If not, set data: 00 to this address.

2-1-1. OPERATING WITHOUT CASSETTE

1) Refer to "Section 2. DISASSEMBLY" and supply the power with the cabinet assembly removed. (So that the mechanical deck can be operated.)
2) Connect the adjustment remote commander to the LANC jack.
3) Turn on the HOLD switch of the adjustment remote commander.
4) Close the cassette compartment without loading a cassette and complete loading.
5) Select page: 0, address: 01, and set data: 01.
6) Select page: C, address: 3E, set data: 01, and press the PAUSE button of the adjustment remote commander.
7) Select page: A, address: 10, set data: 10, and press the PAUSE button.
8) Disconnect the power supply of the unit, and connect it again.
9) Select page: 7, address: 62, and set data: 02.
   By carrying out the above procedure, the unit can be operated without loading a cassette. (Note2)
   Be sure to carry out "Processing after Operations" after checking the operations.
   Set the data of page: D, address: 10 to "02", if the sensor ineffective mode, forced VTR power supply ON mode is to be used together.
   Note2: Except for the camera recording mode and VTR recording mode.

[Procedure after checking operations]

1) Select page: 0, address: 01, and set data: 01.
2) Select page: C, address: 3E, set data: 00, and press the PAUSE button.
3) Select page: D, address: 10, set data: 00, and press the PAUSE button.
4) Select page: A, address: 10, set data: 00, and press the PAUSE button.
5) Select page: 7, address: 62, and set data: 00.
6) Select page: 0, address: 01, and set data: 00.
7) Disconnect the power supply of the unit.

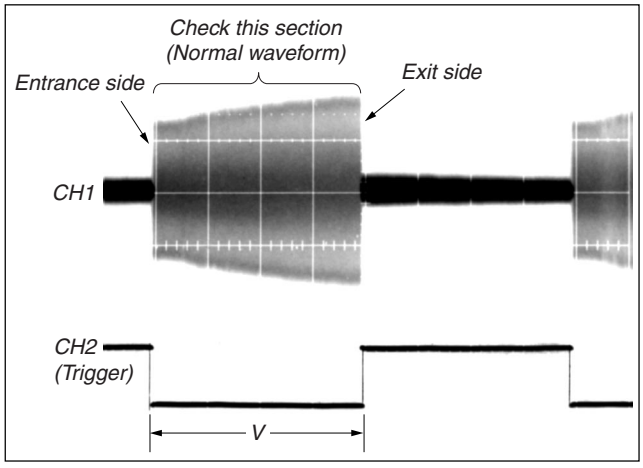


Fig. 5-2-1.

2-1-2. TAPE PATH ADJUSTMENT

1. Preparations for Adjustment

1) Clean the tape path face (tape guide, capstan shaft, pinch roller).
2) Connect the adjustment remote commander to the LANC jack.
3) Turn on the HOLD switch of the adjustment remote commander.
4) Select page: 0, address: 01, and set data: 01.
5) Select page: 7, address: 62, and set data: 02.
6) Select page: C, address: 3E, set data: 08, and press the PAUSE button of the adjustment remote commander.
   (Be sure to perform "Processing after operation" after completing adjustments.)
7) Connect the oscilloscope to VC-278 board CN1108 via CPC-13 jig (J-6082-443-A).
   Channel 1: VC-278 board, CN1108 Pin ⑤
   External trigger: VC-278 board, CN1108 Pin ⑧
8) Playback Hi8/standard 8mm alignment tape for tracking. (WR5-1NP (NTSC), WR5-1CP (PAL))
9) Check that the oscilloscope RF waveform is normal at the entrance and exit. (Fig. 5-2-1.)
   If not normal, adjust according to the separate volume "8mm Video Mechanical Adjustment Manual M2000 Mechanism".
10) Perform "Processing after operations", after completing adjustment.

CN1108 of VC-278 board

Pin No.	Signal Name	Pin No.	Signal Name
1	REG GND	11	VCO
2	N. C.	12	EVF VG
3	BPF MONI	13	RF SWP
4	N. C.	14	N. C.
5	PB RF	15	CAP FG
6	REG GND	16	RF MON
7	N. C.	17	N. C.
8	RF SWP	18	REG GND
9	N. C.	19	REG GND
10	N. C.	20	REG GND

Table 5-2-1.

[Procedure after operations]

1) Connect the adjustment remote commander, and turn on the HOLD switch.
2) Select page: 0, address: 01, and set data: 01.
3) Select page: 7, address: 62, and set data: 00.
4) Select page: C, address: 3E, set data: 00, and press the PAUSE button.
5) Select page: 0, address: 01, and set data: 00.
6) Remove the power supply from the unit.

2-2. DIGITAL8 MODE

Note: Before performing the adjustments, check the data of page: 0, address: 10 is "00". If not, set data: 00 to this address.

2-2-1. HOW TO ENTER RECORD MODE WITHOUT CASSETTE

1) Connect the adjustment remote commander to the LANC jack.
2) Turn the HOLD switch of the adjustment remote commander to the ON position.
3) Close the cassette compartment without the cassette.
4) Select page: 3, address: 01, and set data: 0C, and press the PAUSE button of the adjustment remote commander.
   (The mechanism enters the record mode automatically.)
   Note: The function buttons becomes inoperable.
5) To quit the record mode, select page: 3, address: 01, set data: 00, and press the PAUSE button. (Whenever you want to quit the record mode, be sure to quit following this procedure.)

2-2-2. HOW TO ENTER PLAYBACK MODE WITHOUT CASSETTE

1) Connect the adjustment remote commander to the LANC jack.
2) Turn the HOLD switch of the adjustment remote commander to the ON position.
3) Close the cassette compartment without the cassette.
4) Select page: 3, address: 01, and set data: 0B, and press the PAUSE button.
   (The mechanism enters the playback mode automatically.)
   Note: The function buttons becomes inoperable.
5) To quit the playback mode, select page: 3, address: 01, set data: 00, and press the PAUSE button. (Whenever you want to quit the playback mode, be sure to quit following this procedure.)

2-2-3. OVERALL TAPE PATH CHECK

1. Recording of the tape path check signal

1) Clean the tape running side (tape guide, capstan shaft, pinch roller).
2) Connect the adjustment remote commander to the LANC jack.
3) Turn the HOLD switch of the adjustment remote commander to the ON position.
4) Set to the camera recording mode.
5) Select page: 3, address: 1C, set data: 5D, and press the PAUSE button of the adjustment remote commander.
6) Record for several minutes.
7) Release the camera recording mode.
8) Select page: 3, address: 1C, set data: 00, and press the PAUSE button.

2. Tape path check

1) Clean the tape running side (tape guide, capstan shaft, pinch roller).
2) Connect the adjustment remote commander to the LANC jack.
3) Turn the HOLD switch of the adjustment remote commander to the ON position.
4) Connect an oscilloscope to VC-278 board CN1108 via the CPC-13 jig (J-6082-443-A).
   Channel 1: VC-278 board, CN1108 Pin ⑯ (Note)
   External trigger: VC-278 board, CN1108 Pin ⑬
   Note: Connect a 75Ω resistor between Pins ⑯ of CN1108 and ⑥ (GND).
5) Select page: 7, address: 62, and set data: 01.
6) Playback the tape path check signal.
7) Select page: 3, address: 26, and set data: 31.
8) Select page: 3, address: 33, and set data: 08.
9) Check that the oscilloscope RF waveform is flat at the entrance and exit.
   If not flat, perform "2-1-2. TAPE PATH ADJUSTMENT" of "2-1. HI8/STANDARD 8mm MODE".
10) Select page: 3, address: 26, and set data: 00.
11) Select page: 3, address: 33, and set data: 00.
12) Select page: 7, address: 62, and set data: 00.

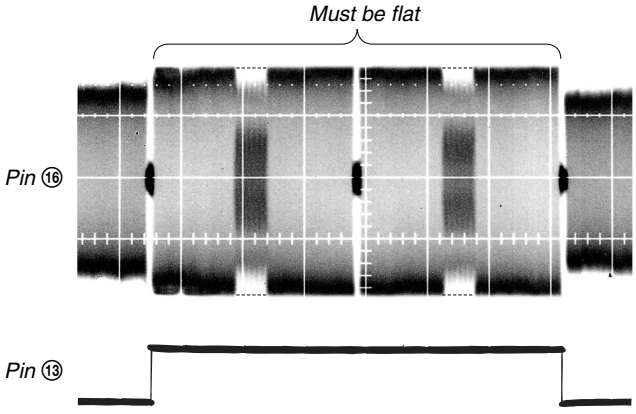


Fig. 5-2-2.

5-3. VIDEO SECTION ADJUSTMENT

3-1. PREPARATIONS BEFORE ADJUSTMENTS

Use the following measuring instruments for video section adjustments.

3-1-1. Equipment to Required

1) TV monitor
2) Oscilloscope (dual-phenomenon, band width above 30 MHz with delay mode) (Unless specified otherwise, use a 10 : 1 probe.)
3) Frequency counter
4) Pattern generator with video output terminal
5) Digital voltmeter
6) Audio generator
7) Audio level meter
8) Audio distortion meter
9) Audio attenuator
10) Regulated power supply
11) Digital8 alignment tapes
    - SW/OL standard (WR5-2D)
      Parts code: 8-967-993-22
    - Audio operation check for NTSC (WR5-3ND)
      Parts code: 8-967-993-32
    - System operation check for NTSC (WR5-5ND)
      Parts code: 8-967-993-42
    - Audio operation check for PAL (WR5-3CD)
      Parts code: 8-967-993-37
    - System operation check for PAL (WR5-5CD)
      Parts code: 8-967-993-47
12) NTSC Hi8/standard8 alignment tapes (For NTSC model)
    - For tracking adjustment (WR5-1NP)
      Parts code : 8-967-995-02
    - For video frequency characteristics adjustment (WR5-7NE)
      Parts code : 8-967-995-13
    - For checking Standard 8 mode operations
      For LP (WR5-4NL)
      Parts code : 8-967-995-51
      For SP (WR5-5NSP)
      Parts code : 8-967-995-42

    Note : The following alignment tapes can also be used.
    WR5-4NSP (8-967-995-41)
    - For checking Hi8 mode operations
      For LP (WR5-8NLE)
      Parts code : 8-967-995-52
      For SP (WR5-8NSE)
      Parts code : 8-967-995-43
    - For Checking AFM stereo operations (WR5-9NS)
      Parts code : 8-967-995-23
    - For BPF adjustment (WR5-11NS)
      Parts code : 8-967-995-71
13) PAL Hi8/standard8 alignment tapes (For PAL model)
    - For tracking adjustment (WR5-1CP)
      Parts code : 8-967-995-07
    - For video frequency characteristics adjustment (WR5-7CE)
      Parts code : 8-967-995-18
    - For checking Standard 8 mode operations
      For LP (WR5-4CL)
      Parts code : 8-967-995-56
      For SP (WR5-5CSP)
      Parts code : 8-967-995-47

    Note : The following alignment tapes can also be used.
    1) WR5-3CL (8-967-995-36)
    2) WR5-4CSP (8-967-995-46)
    - For checking Hi8 mode operations
      For LP (WR5-8CLE)
      Parts code : 8-967-995-57
      For SP (WR5-8CSE)
      Parts code : 8-967-995-48
    - For Checking AFM stereo operations (WR5-9CS)
      Parts code : 8-967-995-28
    - For BPF adjustment (WR5-11CS)
      Parts code : 8-967-995-76
14) Adjustment remote commander (J-6082-053-B)
15) CPC-13 jig (J-6082-443-A)

3-1-2. Precautions on Adjusting

Note1: Before performing the adjustments, check the data of page: 0, address: 10 is "00". If not, set data: 00 to this address.

1) The adjustments of this unit are performed in the VTR mode or camera mode.
   To set to the VTR mode, set the power switch to "VCR or PLAYER" or set the "Forced VTR Power ON mode" using the adjustment remote commander (Note2).
   To set to the Camera mode, set the power switch to "CAMERA" or set the "Forced Camera Power ON mode" using the adjustment remote commander (Note3).
   After completing adjustments, be sure to exit the "Forced VTR Power ON Mode" or "Forced Camera Power ON Mode". (Note4)
2) The front panel block (SI-032 board (Microphone amp., remote commander receiver), FP-411 flexible (MIC jack, Head phone jack, LANC jack, MF photo sensor)) must be assembled for connecting the adjusting remote commander.
   To remove it, disconnect the following connector.
   VC-278 board CN1116 (30P 0.5mm)
3) As removing the cabinet (R) assembly (removing CN1110 of the VC-278 board) means removing the lithium 3V power supply (BT001 on the CF-2500 block), data such as date, time, user-set menus will be lost. After completing adjustments, reset these data.
   But the self-diagnosis data and the data on history of use (total drum rotation time etc.) will be kept even if the lithium 3V power supply is removed. (Refer to "5-4.Service Mode" for the self-diagnosis data and the data on history of use.)
4) The cabinet (R) assembly (CF-2500 block, LCD bock) need not be connected to operate the VTR block. (Use the adjustment remote commander, to operate the VTR block.) When removing the cabinet (R) assembly, disconnect the following connector.
   1. VC-278 board CN1110 (22P, 0.5mm)
   2. VC-278 board CN1106 (20P, 0.8mm)
5) The memory stick connector is need not be connected. To remove it, disconnect the following connector.
   VC-278 board CN1105 (10P, 0.5mm)
6) The viewfinder block is need not be connected. To remove it, disconnect the following connector.
   VC-278 board CN7001 (20P, 0.5mm)
7) The lens block (CD-358 board) need not be connected. To remove, disconnect the following connectors.
   1. VC-278 board CN1501 (24P, 0.5mm)
   2. VC-278 board CN1551 (24P, 0.5mm)
8) By setting the "Forced VTR Power ON mode" or "Forced Camera Power ON mode", the video section can be operate even if the cabinet (L) assembly (SS-1380 block) has been removed. When removing the cabinet (L) assembly, disconnect the following connector.
   1. VC-278 board CN1109 (12P 0.8mm)

Note2: Setting the "Forced VTR Power ON" mode (VTR mode)
1) Select page: 0, address: 01, and set data: 01.
2) Select page: D, address: 10, set data: 02, and press the PAUSE button.

The above procedure will enable the VTR power to be turned on with the cabinet (L) assembly (SS-1380 block) removed.
After completing adjustments, be sure to exit the "Forced VTR Power ON mode".

Note3: Setting the "Forced Camera Power ON" mode (Camera mode)
1) Select page: 0, address: 01, and set data: 01.
2) Select page: D, address: 10, set data: 01, and press the PAUSE button.

The above procedure will enable the camera power to be turned on with the cabinet (L) assembly (SS-1380 block) removed.
After completing adjustments, be sure to exit the "Forced Camera Power ON mode".

Note4: Exiting the "Forced Power ON" mode
1) Select page: 0, address: 01, and set data: 01.
2) Select page: D, address: 10, set data: 00, and press the PAUSE button.
3) Select page: 0, address: 01, and set data: 00.

3-1-3. Adjusting Connectors

Some of the adjusting points of the video section are concentrated at VC-278 board CN1108. Connect the measuring instruments via the CPC-13 jig (J-6082-443-A). The following table lists the pin numbers and signal names of CN1108.

Pin No.	Signal Name	Pin No.	Signal Name
1	REG GND	11	VCO
2	N. C.	12	EVF VG
3	BPF MONI	13	RF SWP
4	N. C.	14	N. C.
5	PB RF	15	CAP FG
6	REG GND	16	RF MON
7	N. C.	17	N. C.
8	RF SWP	18	REG GND
9	N. C.	19	REG GND
10	N. C.	20	REG GND

Table 5-3-1.

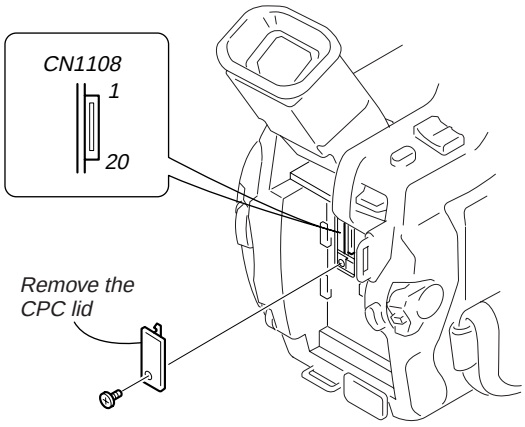


Fig. 5-3-1.

3-1-4. Connecting the Equipment

Connect the measuring instruments as shown in Fig. 5-3-2 and perform the adjustments.

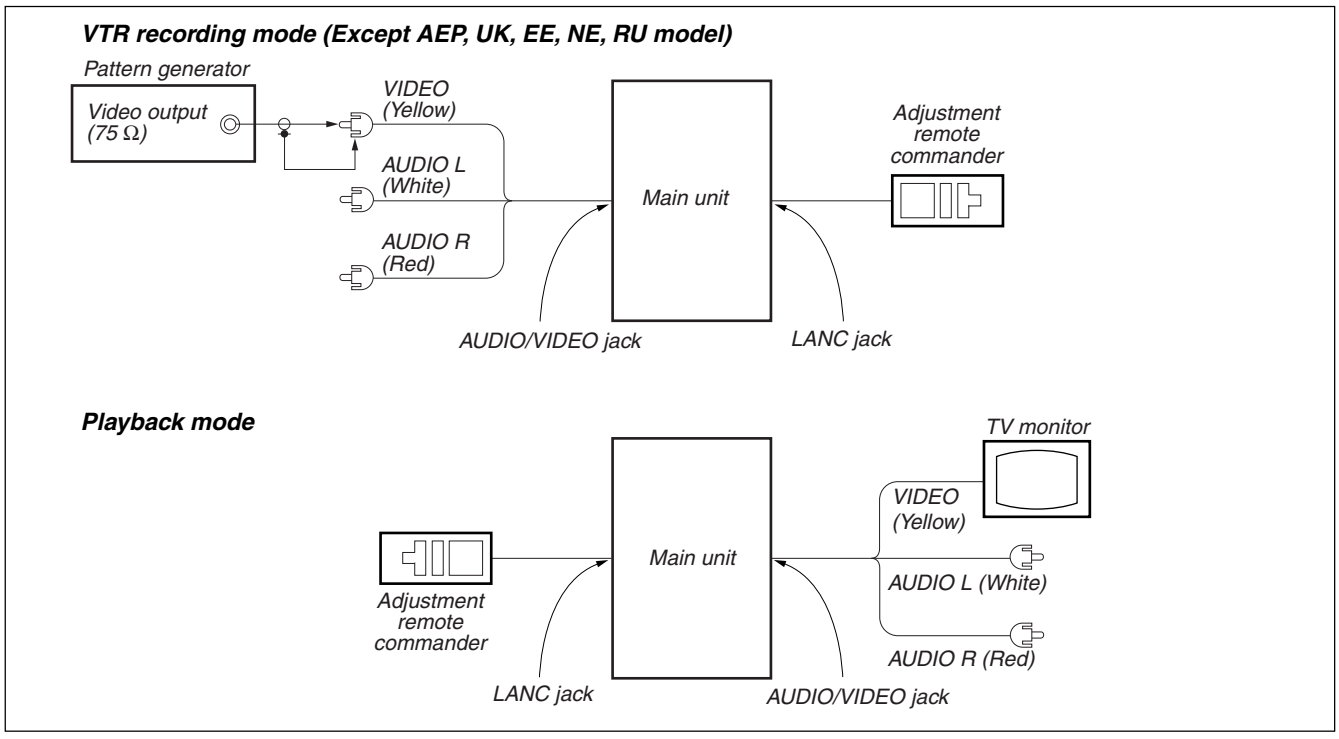


Fig. 5-3-2.

- Abbreviation
  EE : East European model
  NE : North European model
  RU : Russian model

3-1-5. Alignment Tape

The following table lists alignment tapes which are available.
Use the tape specified in the signal column for each adjustment. If the type of tape to be used for checking operations is not specified, use whichever type.

Digital8 alignment tape

Name	Usage
SW/OL standard (WR5-2D)	Switching position adjustment
Audio operation check (WR5-3ND (NTSC), WR5-3CD (PAL))	Audio system adjustment
System operation check (WR5-5ND (NTSC), WR5-5CD (PAL))	Operation check

Hi8/standard 8 mm alignment tape

Name	Recording mode	Tape type	Tape speed	Usage
Tracking (WR5-1NP(NTSC), WR5-1CP(PAL))	Standard 8	MP	SP	Tape path adjustment, Switching position adjustment
Video frequency characteristics (WR5-7NE(NTSC), WR5-7CE(PAL))	Hi8	ME	SP(NTSC) LP(PAL)	Frequency characteristics adjustment
Operation check (WR5-5NSP(NTSC), WR5-5CSP(PAL))	Standard 8	MP	SP	Operation check
Operation check (WR5-8NSE(NTSC), WR5-8CSE(PAL))	Hi8	ME	SP	
Operation check (WR5-4NL(NTSC), WR5-4CL(PAL))	Standard 8	MP	LP	
Operation check (WR5-8NLE(NTSC), WR5-8CLE(PAL)	Hi8	ME	LP	
AFM stereo operation check WR5-9NS(NTSC), WR5-9CS(PAL)	Standard 8	MP	SP	AFM stereo Operation check
BPF adjustment WR5-11NS(NTSC), WR5-11CS(PAL)	Standard 8	MP	SP	BPF adjustment

Tape type
ME ..... Particle type metal tape
MP ..... Evaporated type metal tape

Table. 5-3-2.

Fig. 5-3-3. Shows the color bar signals recorded on the alignment tape.

Note : Measure using the video terminal of AUDIO/VIDEO jack (Terminated at 75 Ω).

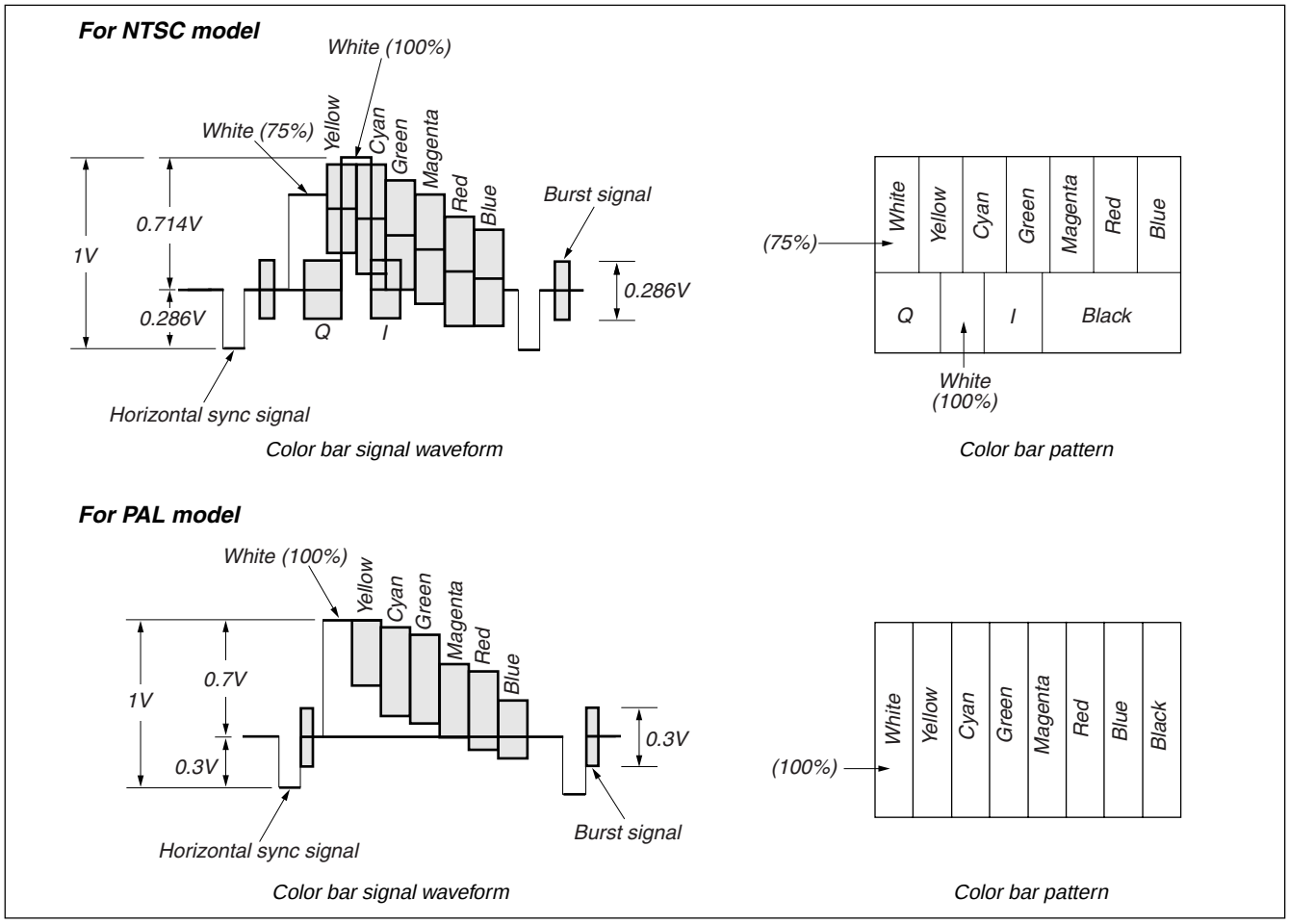


Fig. 5-3-3. Color Bar Signal of the Alignment Tape

3-1-6. Input/output Level and Impedance

Video input/output

Special stereo minijack, 1Vp-p, 75Ω, unbalanced, sync negative

S video input/output

4-pin mini DIN

Luminance signal:

1Vp-p, 75Ω, unbalanced, sync negative

Chrominance signal:

0.286Vp-p, 75Ω, unbalanced (NTSC)

0.300Vp-p, 75Ω, unbalanced (PAL)

Audio input/output

Special stereo minijack:

Input: -7.5dBs, input impedance more than 47kΩ

Output: -7.5dBs, (at load impedance 47kΩ), output impedance less than 2.2kΩ

3-2. SYSTEM CONTROL SYSTEM ADJUSTMENT

1. Initialization of 8, A, B, C, D, E, F, 1B, 1C, 1E, 1F Page Data

If the 8, A, B, C, D, E, F, 1B, 1C, 1E, 1F page data is erased due to some reason, perform "1-2. INITIALIZATION OF PAGE DATA" of "5-1. CAMERA SECTION ADJUSTMENT"

Note: When reading or writing the 1B, 1C, 1E, 1F page data, select page: 0, address: 10, and set data: 01, then select B, C, E or F page. The 1B, 1C, 1E or 1F page can be chosen by this data setting.
After reading or writing, reset the data of page: 0, address: 10 to "00".

2. Serial No. Input

Note: Before performing the adjustments, check the data of page: 0, address: 10 is "00". If not, set data: 00 to this address.

2-1. Company ID Input

Write the company ID in the EEPROM (nonvolatile memory).

Page	8
Address	8C, 8D, 8E, 8F, 90

Input method:

1) Select page: 0, address: 01, and set data: 01.
2) Input the following data to page: 8, addresses: 8C to 90.
   Note: Press the PAUSE button of the adjustment remote commander each time to set the data.
3) Select page: 0, address: 01, and set data: 00.

Address	Data
8C	08
8D	00
8E	46
8F	01
90	02

2-2. Serial No. Input

Write the serial No. and model code in the EEPROM (nonvolatile memory). Convert the serial No. on the name plate from decimal to hexadecimal, and write in the EEPROM.

Page	8
Address	91, 92, 93

Input method:

1) Select page: 0, address: 01, and set data: 01.
2) Read the serial No. on the name plate, and take it as D_1.
   Example: If the serial No. is 77881.
   D_1=77881
   Note: Use six digits of the low rank when a serial No. is more than seven digits.
3) Obtain D_2 and H1 corresponding to D_1 from Table 5-3-3.
   Example: If D1 is "77881".
   $D_2=D_1-65536=12345$
   H_1=FE

D_1 (Decimal)	D_2 (Decimal)	H_1 (Hexadecimal) (Service model code)
000001 to 065535	D_1	FE
065536 to 131071	$D_1-65536$	FE
131072 to 196607	$D_1-131072$	FE

Table 5-3-3.

4) Input H1 to page: 8, address: 91. (Model code input)
   Example: If H_1 is "FE".
   Select page: 8, address: 91, set data: FE, and press the PAUSE button.
5) Obtain the maximum decimal not exceeding D_2 from Table 5-3-4, and take this as D_3.
   Example: If D_2 is "12345".
   D_3 = 12288
6) Obtain the hexadecimal corresponding to D_3 from Table 5-3-4, and take this as H_3.
   Example: If D_3 is "12288".
   H_3 = 3000
7) Obtain the difference D_4 between D_2 and D_3. (Decimal calculation, $0 \leqq D_4 \leqq 255$)
   $D_4 = D_2 - D_3$
   Examp le: If D_2 is "12345" and D_3 is "12288".
   $D_4 = 12345 - 12288 = 57$
8) Convert D_4 to hexadecimal, and take this as H_4.
   (Refer to "Hexadecimal-decimal conversion table" in "5-4. Service Mode".)
   Example: If D_4 is "57".
   H_4 = 39
9) Input the upper 2 digits of H_3 to page: 8, address: 92.
   Example: If H_3 is "3000".
   Select page: 8, address: 92, set data: 30, and press the PAUSE button.
10) Input H_4 to page: 8, address: 93.
    Example: If H_4 is "39".
    Select page: 8, address: 93, set data: 39, and press the PAUSE button.
11) Select page: 0, address: 01, and set data: 00.

Decimal (D_3)	Hexa-decimal (H_3)	Decimal (D_3)	Hexa-decimal (H_3)	Decimal (D_3)	Hexa-decimal (H_3)	Decimal (D_3)	Hexa-decimal (H_3)	Decimal (D_3)	Hexa-decimal (H_3)	Decimal (D_3)	Hexa-decimal (H_3)	Decimal (D_3)	Hexa-decimal (H_3)	Decimal (D_3)	Hexa-decimal (H_3)
0	0000	8192	2000	16384	4000	24576	6000	32768	8000	40960	A000	49152	C000	57344	E000
256	0100	8448	2100	16640	4100	24832	6100	33024	8100	41216	A100	49408	C100	57600	E100
512	0200	8704	2200	16896	4200	25088	6200	33280	8200	41472	A200	49664	C200	57856	E200
768	0300	8960	2300	17152	4300	25344	6300	33536	8300	41728	A300	49920	C300	58112	E300
1024	0400	9216	2400	17408	4400	25600	6400	33792	8400	41984	A400	50176	C400	58368	E400
1280	0500	9472	2500	17664	4500	25856	6500	34048	8500	42240	A500	50432	C500	58624	E500
1536	0600	9728	2600	17920	4600	26112	6600	34304	8600	42496	A600	50688	C600	58880	E600
1792	0700	9984	2700	18176	4700	26368	6700	34560	8700	42752	A700	50944	C700	59136	E700
2048	0800	10240	2800	18432	4800	26624	6800	34816	8800	43008	A800	51200	C800	59392	E800
2304	0900	10496	2900	18688	4900	26880	6900	35072	8900	43264	A900	51456	C900	59648	E900
2560	0A00	10752	2A00	18944	4A00	27136	6A00	35328	8A00	43520	AA00	51712	CA00	59904	EA00
2816	0B00	11008	2B00	19200	4B00	27392	6B00	35584	8B00	43776	AB00	51968	CB00	60160	EB00
3072	0C00	11264	2C00	19456	4C00	27648	6C00	35840	8C00	44032	AC00	52224	CC00	60416	EC00
3328	0D00	11520	2D00	19712	4D00	27904	6D00	36096	8D00	44288	AD00	52480	CD00	60672	ED00
3584	0E00	11776	2E00	19968	4E00	28160	6E00	36352	8E00	44544	AE00	52736	CE00	60928	EE00
3840	0F00	12032	2F00	20224	4F00	28416	6F00	36608	8F00	44800	AF00	52992	CF00	61184	EF00
4096	1000	12288	3000	20480	5000	28672	7000	36864	9000	45056	B000	53248	D000	61440	F000
4352	1100	12544	3100	20736	5100	28928	7100	37120	9100	45312	B100	53504	D100	61696	F100
4608	1200	12800	3200	20992	5200	29184	7200	37376	9200	45568	B200	53760	D200	61952	F200
4864	1300	13056	3300	21248	5300	29440	7300	37632	9300	45824	B300	54016	D300	62208	F300
5120	1400	13312	3400	21504	5400	29696	7400	37888	9400	46080	B400	54272	D400	62464	F400
5376	1500	13568	3500	21760	5500	29952	7500	38144	9500	46336	B500	54528	D500	62720	F500
5632	1600	13824	3600	22016	5600	30208	7600	38400	9600	46592	B600	54784	D600	62976	F600
5888	1700	14080	3700	22272	5700	30464	7700	38656	9700	46848	B700	55040	D700	63232	F700
6144	1800	14336	3800	22528	5800	30720	7800	38912	9800	47104	B800	55296	D800	63488	F800
6400	1900	14592	3900	22784	5900	30976	7900	39168	9900	47360	B900	55552	D900	63744	F900
6656	1A00	14848	3A00	23040	5A00	31232	7A00	39424	9A00	47616	BA00	55808	DA00	64000	FA00
6912	1B00	15104	3B00	23296	5B00	31488	7B00	39680	9B00	47872	BB00	56064	DB00	64256	FB00
7168	1C00	15360	3C00	23552	5C00	31744	7C00	39936	9C00	48128	BC00	56320	DC00	64512	FC00
7424	1D00	15616	3D00	23808	5D00	32000	7D00	40192	9D00	48384	BD00	56576	DD00	64768	FD00
7680	1E00	15872	3E00	24064	5E00	32256	7E00	40448	9E00	48640	BE00	56832	DE00	65024	FE00
7936	1F00	16128	3F00	24320	5F00	32512	7F00	40704	9F00	48896	BF00	57088	DF00	65280	FF00

Table 5-3-4.

3-3. SERVO AND RF SYSTEM ADJUSTMENT

Before perform the servo and RF system adjustments, check that the specified value of "54MHz/66MHz Origin Oscillation Adjustment" of "VIDEO SYSTEM ADJUSTMENT" is satisfied. And check that the data of page: 0, address: 10 is "00". If not, set data: 00 to this address.

Note: NTSC model: DCR-TRV740/TRV840
PAL model: DCR-TRV738E/TRV740E

Adjusting Procedure:

1. REEL FG adjustment
2. PLL f_0 & LPF f_0 adjustment
3. Switching position adjustment
4. AGC center level and APC & AEQ adjustment
5. PLL f_0 & LPF f_0 fine adjustment
6. Hi8/Standrd8 switching position adjustment
7. Cap FG duty adjustment

1. REEL FG Adjustment (VC-278 board) RadarW

Compensates the dispersion of the hall elements.

Measurement Point	Display data of page: 3, address: 03
Measuring Instrument	Adjustment remote commander
Adjustment Page	C
Adjustment Address	17, 2F
Specified Value	00 or 01 or 04 or 05

Note: The data of page: 0, address: 10 must be "00".

Adjusting method:

Order	Page	Address	Data	Procedure
1				Close the cassette compartment without inserting a cassette.
2	0	01	01	Set the data.
3	3	01	1C	Set the data, and press PAUSE button.
4	3	02		Check that the data changes to "00",
5	3	03		Check that the data is "00" or "01" or "04" or "05". (Note)
6	0	01	00	Set the data.

Note: If the data is other value, adjustment has errors. (Take an appropriate remedial measures according to the errors referring to the following table.)

Data	Contents of defect
02, 03, 06, 07	T reel is defective
08, 09, 0C, 0D	S reel is defective
0A, 0B, 0E, 0F	S reel and T reel are defective

2. PLL f_0 & LPF f_0 Adjustment (VC-278 board) RadarW

Mode	VTR stop
Measurement Point	Display data of page: 3, address: 02, 03
Measuring Instrument	Adjustment remote commander
Adjustment Page	C
Adjustment Address	1F, 20, 22, 29
Specified Value	Data of page: 3, address: 02 is "00". Data of page: 3, address: 03 is "00".

Note1: The data of page: 0, address: 10 must be "00".

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	C	21	CA	Set the data, and press PAUSE button.
3	3	01	00	Set the data, and press PAUSE button.
4	3	01	30	Set the data, and press PAUSE button.
5	3	02		Check that the data changes to "00" with in 10 sec. (Note2)
6	3	03		Check that the data is "00". (Note2)
7	0	01	00	Set the data.

Note2: If it isn't satisfied, select page: C, address: 21, set the following data, and press the PAUSE button, and repeat steps 3 to 6.

	Setting data
When the data of page: C, address: 21 is "CA".	CE
When the data of page: C, address: 21 is "CE".	C6
When the data of page: C, address: 21 is "C6".	D2
When the data of page: C, address: 21 is "D2"	C2

There are errors when it isn't satisfied even if the above treatment is done.
If bit2, bit3, bit4, bit5 or bit 6 of the data of page: 3, address: 03 is "1", there are errors. For the error contents, see the following table. (For the bit values, refer to "5-4. SERVICE MODE", "4-3. 3. Bit value discrimination".)

Bit value of page: 3, address: 03 data	Error contents
bit 2 = 1 or bit 3 = 1	PLL f_0 fine adjustment is defective
bit 4 = 1 or bit 5 = 1	PLL f_0 adjustment is defective
bit 6 = 1	LPF f_0 adjustment is defective

3. Switching Position Adjustment (VC-278 board) RadarW

To obtain normal playback waveform output during the Digital8 playback mode, adjust the switching position.

Mode	VTR playback
Signal	SW/OL reference tape (WR5-2D)
Measurement Point	Display data of page: 3, address: 03
Measuring Instrument	Adjustment remote commander
Adjustment Page	C
Adjustment Address	10, 11, 12, 13
Specified Value	00

Note1: The data of page: 0, address: 10 must be "00".

Adjusting method:

Order	Page	Address	Data	Procedure
1				Insert the SW/OL reference tape and enter the VTR STOP mode.
2	0	01	01	Set the data.
3	C	10	EE	Set the data, and press PAUSE button.
4	3	21		Check that the data is "02". (Note2)
5	3	01	0D	Set the data, and press PAUSE button.
6	3	02		Check that the data changes to "00" in the following order. "0E"→"29"→"0E"→"20"→"00"
7	3	03		Check that the data is "00". (Note3)
8	C	10		Check that the data is other than "EE". (Note3)
9	0	01	00	Set the data.

Note2: If the data of page: 3, address: 21 is "72", the tape top being played. After playing the tape for 1 to 2 seconds, stop it, perform step 5 and higher.

Note3: If the data is other than "00", select page: C, address: 21, after write down the data, set data: 10, and press the PAUSE button, and repeat from step1.
There are errors when the data of page: 3, address: 03 is other than "00" even if this treatment is done. Select page: C, address: 21, set the data written down, and press the PAUSE button.
If bit 0 of the data is "1", the A channel is defective. If bit 1 is "1", the B channel is defective. Contents of the defect is written into page: C, addresses: 10 and 12. See the following table. (For the bit values, refer to "5-4. SERVICE MODE", "4-3. 3. Bit value discrimination".) If bit 3 of the data is "1",the tape end being played, and adjustment has errors.

Note4: If the data is "EE", rewind the tape and repeat steps 1 to 7.

When the A channel is defective

Data of page: C, address: 10	Contents of defect
EE	Writing into EEPROM (IC4502) is defective
E8	Adjustment data is out of range
E7	No data is returned from IC3301

When the B channel is defective

Data of page: C, address: 12	Contents of defect
E8	Adjustment data is out of range
E7	No data is returned from IC3301

4. AGC Center Level and APC & AEQ Adjustment

Note: The data of page: 0, address: 10 must be "00".
Use a Hi8 MP tape.

4-1. Preparations before adjustments

Mode	Camera recording
Subject	Arbitrary

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	8	21	C8	Set the data.
3				Record the camera signal for three minutes.

4-2. AGC Center Level Adjustment (VC-278 board) RadarW

Mode	Playback
Signal	Recorded signal at "Preparations before adjustments"
Measurement Point	Pin ⑯ of CN1108 (RF MON) (Note 1) Ext. trigger: Pin ⑬ of CN1108 (RF SWP)
Measuring Instrument	Oscilloscope
Adjustment Page	C
Adjustment Address	1E
Specified Value	The data of page: 3, address: 03 is "00"

Note1: Connect a 75Ω resistor between Pin ⑯ and Pin ⑳ (GND) of CN1108.
75Ω resistor (Parts code: 1-247-804-11)

Adjusting method:

Order	Page	Address	Data	Procedure
1				Playback the recorded signal at "Preparations before adjustments"
2	0	01	01	Set the data.
3	7	62	01	Set the data.
4	3	33	08	Set the data.
5				Confirm that the playback RF signal is stable. (Fig. 5-3-4.)
6	3	01	23	Set the data, and press PAUSE button.
7	3	02		Check that the data is "00".
8	3	03		Check that the data is "00". (Note2)
9				Perform "APC & AEQ Adjustment".

Note2: If the data of page: 3, address: 03 is other than "00", adjustment has errors.

4-3. APC & AEQ Adjustment (VC-278 board) RadarW

Mode	Playback
Signal	Recorded signal at “Preparations before adjustments”
Measurement Point	Pin ⑯ of CN1108 (RF MON) (Note 1) Ext. trigger: Pin ⑬ of CN1108 (RF SWP)
Measuring Instrument	Oscilloscope
Adjustment Page	C
Adjustment Address	18, 19, 1B, 1C, 21, 2C
Specified Value	The data of page: 3, address: 03 is “00”

Note1: Connect a 75Ω resistor between Pin ⑯ and Pin ⑳ (GND) of CN1108.
75Ω resistor (Parts code: 1-247-804-11)

Note2: The “AGC Center Level Adjustment” must have already been completed before starting this adjustment.

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	C	18	20	Set the data, and press PAUSE button.
3	C	19	20	Set the data, and press PAUSE button.
4	C	1B	25	Set the data, and press PAUSE button.
5	C	1C	25	Set the data, and press PAUSE button.
6	C	21	CA	Set the data, and press PAUSE button.
7	C	2C	03	Set the data, and press PAUSE button.
8				Playback the recorded signal at “Preparations before adjustments”
9	7	62	01	Set the data.
10	3	33	08	Set the data.
11				Confirm that the playback RF signal is stable. (Fig. 5-3-4.)
12	3	01	07	Set the data, and press PAUSE button.
13	3	02		Check that the data changes from “07” to “00” in about 20 seconds after pressing PAUSE button.
14	3	03		Check that the data is “00”. (Note3)
15				Perform “Processing after Completing Adjustments”.

Note3: If the data is other than “00”, adjustment has errors.

4-4. Processing after Completing Adjustments RadarW

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	7	62	00	Set the data.
3	3	33	00	Set the data.
4	8	21	00	Set the data, and press PAUSE button.
5	0	01	00	Set the data.

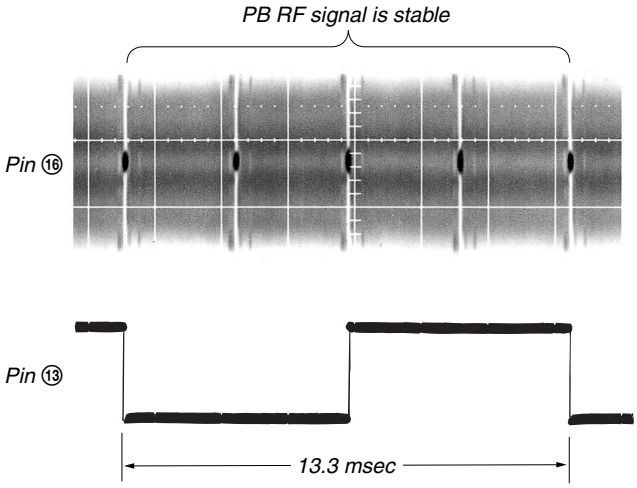


Fig. 5-3-4.

5. PLL f0 & LPF f0 Fine Adjustment (VC-278 board)

RadarW

Mode	VTR stop
Signal	Arbitrary
Measurement Point	Display data of page: 3, address: 02, 03
Measuring Instrument	Adjustment remote commander
Adjustment Page	C
Adjustment Address	1F, 20, 22, 29
Specified Value	Display data of page: 3, address: 02 is "00". Display data of page: 3, address: 03 is "00".

Note1: The data of page: 0, address: 10 must be "00".

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	3	01	30	Set the data, and press PAUSE button.
3	3	02		Check that the data changes to "00" with in 10 sec. (Note2)
4	3	03		Check that the data is "00". (Note3)
5	0	01	00	Set the data.

Note2: If it isn't satisfied, there are errors.

Note3: If the data of page: 3, address: 03 is other than "00", there are errors. For the error contents, see the following table. (For the bit values, refer to "5-4. SERVICE MODE", "4-3. 3. Bit value discrimination".)

Bit value of page: 3, address: 03	Error contents
bit 2 = 1 or bit 3 = 1	PLL f0 fine adjustment is defective
bit 4 = 1 or bit 5 = 1	PLL f0 adjustment is defective
bit 6 = 1	LPF f0 adjustment is defective

6. Hi8/Standard8 Switching Position Adjustment (VC-278 board)

If deviated in this case causes switching noise or jitter on the Hi8/Standard8 mode played back screen.

Mode	Playback
Signal	Hi8/Standard8 alignment tape: For tracking adjustment (WR5-1NP (NTSC), WR5-1CP (PAL))
Measurement Point	CH1: Pin ⑧ of CN1108 (RF SWP) CH2: Pin ⑤ of CN1108 (PB RF)
Measuring Instrument	Oscilloscope
Adjustment Page	C
Adjustment Address	40, 41
Specified Value	t1 = 0 ± 10 µsec

Note1: The data of page: 0, address: 10 must be "00".

Adjusting Method:

Order	Page	Address	Data	Procedure
1				Set to the stop mode.
2	0	01	01	Set the data.
3	C	3E	40	Set the data, and press PAUSE button.
4	7	62	02	Set the data.
5				Set to the playback mode.
6	C	40		Change the data and minimize "t1". (Coarse adjustment)
7	C	40		Press PAUSE button
8	C	41		Change the data and adjust so that the switching position (t1) becomes the specified value. (Fine adjustment)
9	C	41		Press PAUSE button
10	C	3E	00	Set the data, and press PAUSE button.
11	7	62	00	Set the data.
12	0	01	00	Set the data.

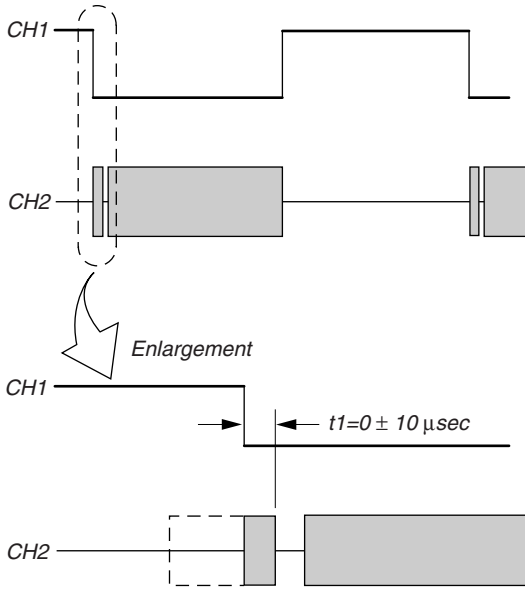


Fig. 5-3-5.

7. CAP FG Duty Adjustment (VC-278 board) RadarW

Set the Cap FG signal duty cycle to 50% to establish an appropriate capstan servo. If deviated, the uneven rotation of capstan and noise can occur in the Hi8/Standard8 LP mode.

Mode	Playback
Signal	Hi8/standard 8 alignment tape : For checking operation (WR5-5NSP (NTSC), WR5-5CSP (PAL))
Measurement Point	Pin ⑮ of CN1108 (CAP FG)
Measuring Instrument	Oscilloscope
Adjustment Page	C
Adjustment Address	16
Specified value	Duty = 50 ± 1 %

Note1: The data of page: 0, address: 10 must be “00”.

Adjusting method:

Order	Page	Address	Data	Procedure
1				Set to the playback mode.
2	0	01	01	Set the data.
3	3	01	00	Set the data, and press PAUSE button.
4	3	01	81	Set the data, and press PAUSE button.
5	3	02		Check that the data changes from “81” to “00”.
6	3	03		Check that the data is “00”. (Note2)
7				Check that Duty of CAP FG signal satisfies the specified value. If not, repeat steps 3 to 7.
8	0	01	00	Set the data.

Note2: If the data of page: 3, address: 03 is other than “00”, there are errors. For the error contents, see the following table. (For the bit values, refer to “5-4. SERVICE MODE”, “4-3. 3. Bit value discrimination”.)

Bit value of page: 3, address: 03	Error contents
bit 0 = 1	Adjustment time-out
bit 1 = 1	Hi8/Standard8 mode wasn’t set up.

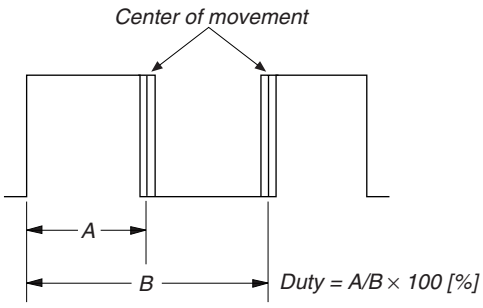


Fig. 5-3-6.

3-4. VIDEO SYSTEM ADJUSTMENTS

Note1: Before performing the adjustments, check the data of page: 0, address: 10 is "00". If not, set data: 00 to this address.

Note2: NTSC model: DCR-TRV740/TRV840
PAL model: DCR-TRV738E/TRV740E

1. 54MHz/66MHz Origin Oscillation Adjustment (VC-278 board)

Set the frequency of the clock for synchronization.
If deviated, the synchronization will be disrupted and the color will become inconsistent.

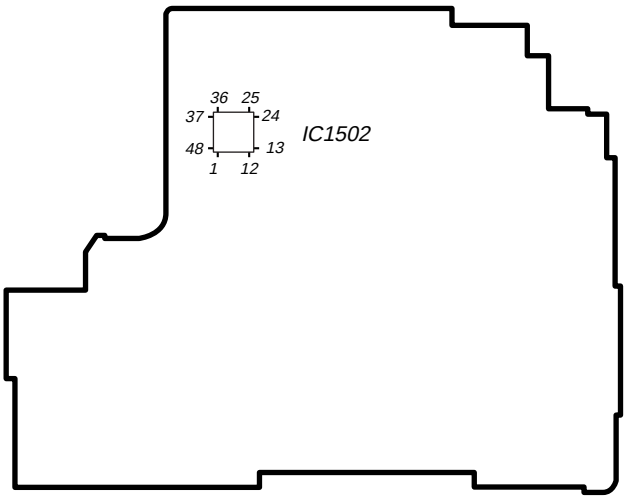
Mode	Camera
Subject	Not required
Measurement Point	Pin ⑯ of IC1502
Measuring Instrument	Frequency counter
Adjustment Page	F
Adjustment Address	10
Specified Value	f = 33000000 ± 166Hz (NTSC) f = 27000000 ± 134Hz (APL)

Note: The data of page: 0, address: 10 must be "00".

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	F	10		Change the data and set the frequency (f) to the specified value.
3	F	10		Press PAUSE button.
4	0	01	00	Set the data.

VC-278 board



2. S VIDEO OUT Y Level Adjustment (VC-278 board)

Mode	VTR stop
Signal	No signal
Measurement Point	Y signal terminal of S VIDEO jack (75Ω terminated)
Measuring Instrument	Oscilloscope
Adjustment Page	C
Adjustment Address	25
Specified Value	A = 1000 ± 20mV

Note1: The data of page: 0, address: 10 must be "00".

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	A	12	10	Set the data, and press PAUSE button.
3	3	0C	02	Set the data, and press PAUSE button.
4	C	25		Change the data and set the Y signal level (A) to the specified value.
5	C	25		Press PAUSE button.
6	3	0C	00	Set the data, and press PAUSE button.
7	A	12	00	Set the data, and press PAUSE button.
8	0	01	00	Set the data.

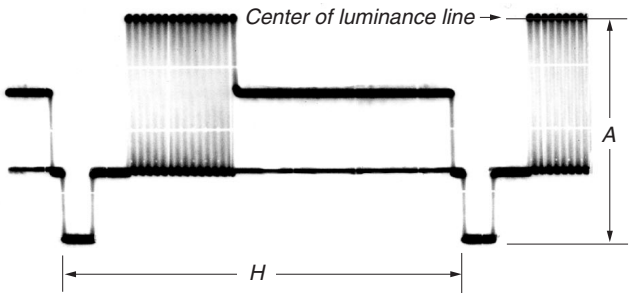


Fig. 5-3-7.

3. S VIDEO OUT Chroma Level Adjustment (VC-278 board)

Mode	VTR stop
Signal	No signal
Measurement Point	Chroma signal terminal of S VIDEO jack (75Ω terminated) External trigger: Y signal terminal of S VIDEO jack
Measuring Instrument	Oscilloscope
Adjustment Page	C
Adjustment Address	26, 27
Specified Value	Cr level: A = 714 ± 14mV (NTSC) A = 700 ± 14mV (PAL) Cb level: B = 714 ± 14mV (NTSC) B = 700 ± 14mV (PAL) Burst level: C =286 ± 6mV (NTSC) C =300 ± 6mV (PAL)

Note: The data of page: 0, address: 10 must be “00”.

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	A	12	10	Set the data, and press PAUSE button.
3	3	0C	02	Set the data, and press PAUSE button.
4	C	26		Change the data and set the Cr signal level (A) to the specified value.
5	C	26		Press PAUSE button.
6	C	27		Change the data and set the Cb signal level (B) to the specified value.
7	C	27		Press PAUSE button.
8	3	0C	00	Set the data, and press PAUSE button.
9	A	12	00	Set the data, and press PAUSE button.
10	0	01	00	Set the data.

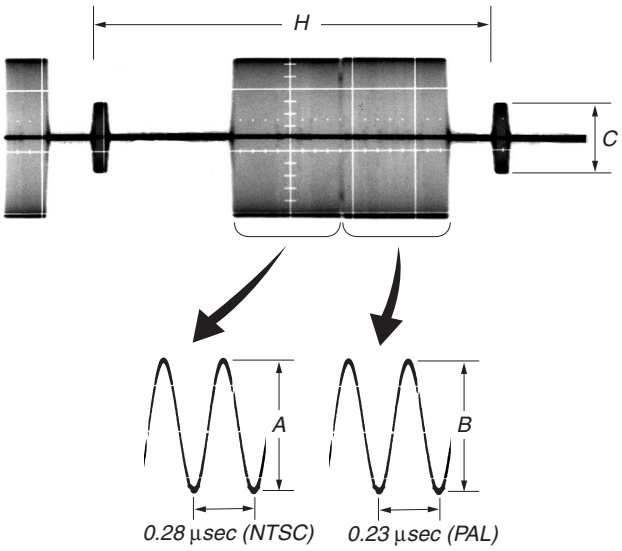


Fig. 5-3-8.

4. VIDEO OUT Y, Chroma Level Check (VC-278 board)

Mode	VTR stop
Signal	No signal
Measurement Point	Video signal terminal of AUDIO/ VIDEO jack (75Ω terminated)
Measuring Instrument	Oscilloscope
Specified Value	Sync level: A = 293 ± 18mV (NTSC) A = 307 ± 18mV (PAL) Burst level: B = 286 ± 18mV (NTSC) B = 300 ± 18mV (PAL)

Note: The data of page: 0, address: 10 must be “00”.

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	A	12	10	Set the data, and press PAUSE button.
3	3	0C	02	Set the data, and press PAUSE button.
4				Check that the sync signal level (A) satisfies the specified value.
5				Check that the burst signal level (B) satisfies the specified value.
6	3	0C	00	Set the data, and press PAUSE button.
7	A	12	00	Set the data, and press PAUSE button.
8	0	01	00	Set the data.

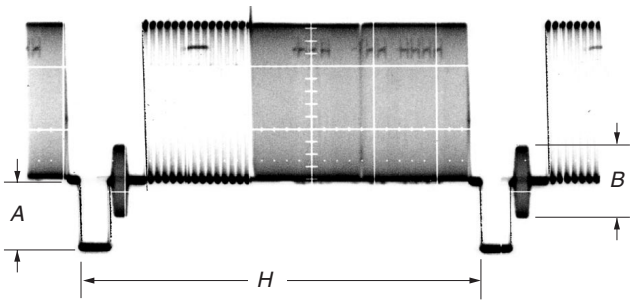


Fig. 5-3-9.

5. Hi8/Standard8 Y/C Output Level Setting (VC-278 board) RadarW

Set the Y/C signal output level during the Hi8/Standard8 playback mode.

Mode	VTR stop
Signal	No signal
Adjustment Page	C
Adjustment Address	44, 45

Note1: Perform this adjustment when IC2201 is replaced.
Note2: The data of page: 0, address: 10 must be “00”.

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	D	10	02	Set the data, and press PAUSE button.
3	3	9E	01	Set the data.
4	3	A4		Check that the data. When the data is “53”, proceed to step 5. When the data is “03”, proceed to step 8.
5	C	44	<69> [65]	Set the data, and press PAUSE [65]button. (Note3)
6	C	45	<64> [72]	Set the data, and press PAUSE button. (Note3)
7				Proceed to step 10.
8	C	44	A0	Set the data, and press PAUSE button.
9	C	45	<AA> [B8]	Set the data, and press PAUSE button. (Note3)
10	3	9E	00	Set the data.
11	D	10	00	Set the data, and press PAUSE button.
12	0	01	00	Set the data.

Note3: < >: NTSC model, [ ]: PAL model

6. Hi8/standard 8mm AFC fo Adjustment (VC-278 board) RadarW

Adjust the pull-in range of the clock generator (IC2201) for A/D conversion during Hi8/standard 8mm playback.

Mode	VTR stop
Signal	No signal
Measurement Point	Display data of page: 3, address: 9D
Measuring Instrument	Adjustment remote commander
Adjustment Page	C
Adjustment Address	43
Specified Value	7C to 84

Note: The data of page: 0, address: 10 must be “00”.

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	D	10	02	Set the data, and press PAUSE button.
3	3	0D	04	Set the data, and press PAUSE button.
4	3	93	04	Set the data.
5	3	9E	01	Set the data.
6	C	43	50	Set the data, and press PAUSE button.
7	3	01	60	Set the data, and press PAUSE button.
8	3	02		Check that the data changes from “60” to “00”.
9	3	03		Check that the data is “00”.
10	3	01	00	Set the data, and press PAUSE button.
11	3	9D		Check that the data satisfies the specifies value. When the data doesn’t satisfy the specified value, return to step 6.
12	3	0D	00	Set the data, and press PAUSE button.
13	3	93	00	Set the data.
14	3	9E	00	Set the data.
15	D	10	00	Set the data, and press PAUSE button.
16	0	01	00	Set the data.

3-5. AUDIO SYSTEM ADJUSTMENTS

Note1: Before performing the adjustments, check the data of page: 0, address: 10 is "00". If not, set data: 00 to this address.
Note2: NTSC model: DCR-TRV740/TRV840
PAL model: DCR-TRV738E/TRV740E

[Connecting the measuring instruments for the audio]
Connect the audio system measuring instruments in addition to the video system measuring instruments as shown in Fig. 5-3-10.

[Adjustment Procedure]
1) Hi8/Standard8 AFM BPF f0 adjustment
2) Hi8/Standard8 AFM 1.5MHz deviation adjustment
3) Hi8/Standard8 AFM 1.7MHz deviation adjustment
4) Digital8 playback level check
5) Overall level characteristics check
6) Overall distortion check
7) Overall noise level check
8) Overall separation check

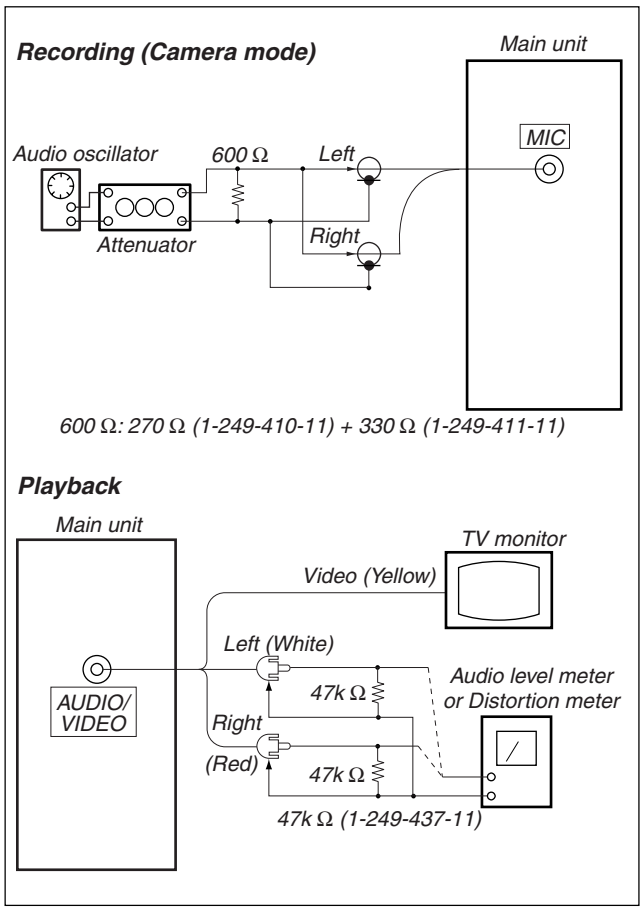


Fig. 5-3-10.

1. Hi8/Standard8 AFM BPF f0 Adjustment (VC-278 board)

Sets the BPF passing frequency of IC5701 so that the AFM signal can separate from the playback RF signal properly. If deviated. the mono/stereo mode will be differentiated incorrectly, and noises and distortions will increase during high volume playback.

Mode	Playback
Signal	Hi8/Standard8 alignment tape: For BPF adjustment (WR5-11NS (NTSC), WR5-11CS (PAL))
Measurement Point	AUDIO/VIDEO jack left or right
Measuring Instrument	Distortion meter
Adjustment Page	C
Adjustment Address	4E
Specified Value	The Main and Sub channel distortion rate should be almost the same (within ± 1%) and minimum.

Note: The data of page: 0, address: 10 must be "00".

Adjusting method:
1) Select page: 0, address: 01, and set data: 01.
2) Set the Hi-Fi SOUND switch (menu display) to "2".
3) Select page: C, address: 4E, change the data and minimize the distortion rate.
4) Press the PAUSE button.
5) Set the Hi-Fi SOUND switch (menu display) to "1".
6) Select page: C, address: 4E, change the data and minimize the distortion rate.
7) Press the PAUSE button.
8) Repeat steps 2) to 7) and set the data of address: 4E so that the distortions rates when the Hi-Fi SOUND switch is set to "2" and set to "1" respectively are almost the same and minimum.
9) Press the PAUSE button.
10) Select page: 0, address: 01, and set data: 00.
11) Set the Hi-Fi SOUND switch to "STEREO".

2. Hi8/Standard8 AFM 1.5 MHz Deviation Adjustment (VC-278 board)

Adjust to the optimum 1.5MHz audio FM signal deviation.
If the adjustment is not correct, its playback level will differ from that of other units.

Mode	Playback
Signal	Hi8/Standard8 alignment tape: For checking AFM stereo operation Monoscope section (WR5-9NS (NTSC), WR5-9CS (PAL))
Measurement Point	AUDIO/VIDEO jack left or right
Measuring Instrument	Audio level meter
Adjustment Page	C
Adjustment Address	4C
Specified Value	–7.5 ± 2.0dBs

Note: The data of page: 0, address: 10 must be "00".

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Set the Hi-Fi SOUND switch (menu display) to "1".
3) Select page: C, address: 4C, change the data and set the 400Hz signal level to the specified value.
4) Press the PAUSE button.
5) Set the Hi-Fi SOUND switch (menu display) to "STEREO".
6) Select page: 0, address: 01, and set data: 00.

3. Hi8/Standard8 AFM 1.7 MHz Deviation Adjustment (VC-278 board)

Adjust to the optimum 1.7MHz audio FM signal deviation.
If improper, this causes deteriorated separation (with stereo signal).

Mode	Playback
Signal	Hi8/Standard8 alignment tape: For checking AFM stereo operation Monoscope section (WR5-9NS (NTSC), WR5-9CS (PAL))
Measurement Point	AUDIO/VIDEO jack left or right
Measuring Instrument	Oscilloscope
Adjustment Page	C
Adjustment Address	4D
Specified Value	–7.5 ± 2.0dBs

Note: The data of page: 0, address: 10 must be "00".

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Set the Hi-Fi SOUND switch (menu display) to "2".
3) Select page: C, address: 4D, change the data and set the 1kHz signal level to the specified value.
4) Press the PAUSE button.
5) Set the Hi-Fi SOUND switch (menu display) to "STEREO".
6) Select page: 0, address: 01, and set data: 00.

4. Digital8 Playback Level Check

Mode	Playback
Signal	Digital8 alignment tape: For audio operation check (WR5-3ND (NTSC), WR5-3CD (PAL))
Measurement Point	AUDIO/VIDEO jack left or right
Measuring Instrument	Audio level meter and frequency counter
Specified Value	32 kHz mode: 1 kHz, +3.0 ± 2.0dBs 48 kHz mode: 1 kHz, +3.0 ± 2.0dBs 44.1 kHz mode: The 7.35kHz signal level during EMP OFF is +2.0 ± 2.0dBs. The 7.35kHz signal level during EMP ON is –6 ± 2 dB from the signal level during EMP OFF.

Checking Method:

1) Check that the playback signal level is the specified value.

5. Overall Level Characteristics Check

Mode	Recording and playback
Signal	400Hz, –66dBs signal: MIC jack left and right
Measurement Point	AUDIO/VIDEO jack left or right
Measuring Instrument	Audio level meter
Specified Value	–7.5 ± 3.0dBs

Checking Method:

1) Input the 400Hz, –66dBs signal in the MIC jack left and right.
2) Record the signal.
3) Playback the recorded section.
4) Check that the 400Hz signal level is the specified value.

6. Overall Distortion Check

Mode	Recording and playback
Signal	400Hz, –66dBs signal: MIC jack left and right
Measurement Point	AUDIO/VIDEO jack left or right
Measuring Instrument	Audio distortion meter
Specified Value	Below 0.4% (200Hz to 6kHz BPF ON)

Checking Method:

1) Input the 400Hz, –66dBs signal in the MIC jack left and right.
2) Record the signal.
3) Playback the recorded section.
4) Check that the distortion is the specified value.

7. Overall Noise Level Check

Mode	Recording and playback
Signal	No signal: MIC jack left and right
Measurement Point	AUDIO/VIDEO jack left or right
Measuring Instrument	Audio level meter
Specified Value	Below –45dBs (IHF-A filter ON, 20kHz LPF ON)

Checking Method:

1) Connect the left terminal of MIC jack and its ground terminal with a jumper wire.
2) Connect the right terminal of MIC jack and its ground terminal with a jumper wire.
3) Record the signal.
4) Playback the recorded section.
5) Check that the noise level is the specified value.
6) Remove the jumper wires.

8. Overall Separation Check

Mode	Recording and playback
Signal	No signal: MIC jack <left> [right] 400Hz, –66dBs signal: MIC jack <right> [left]
Measurement Point	AUDIO/VIDEO jack <left> [right]
Measuring Instrument	Audio level meter
Specified Value	Below –40dBs

< >: Left channel check
[ ]: Right channel check

Checking Method:

1) Connect the <left> [right] terminal of MIC jack and its ground terminal with a jumper wire.
2) Input the 400Hz, –66dBs signal in the MIC jack <right> [left].
3) Record the signal.
4) Playback the recorded section.
5) Check that the signal level of the AUDIO/VIDEO jack <left> [right] is the specified value.
6) Remove the jumper wire.

5-4. SERVICE MODE

4-1. ADJUSTMENT REMOTE COMMANDER

The adjustment remote commander is used for changing the calculation coefficient in signal processing, EVR data, etc. The adjustment remote commander performs bi-directional communication with the unit using the remote commander signal line (LANC). The resultant data of this bi-directional communication is written in the non-volatile memory.

1. Using the Adjustment Remote Commander

1) Connect the adjustment remote commander to the LANC terminal.
2) Set the HOLD switch of the adjustment remote commander to "HOLD" (SERVICE position). If it has been properly connected, the LCD on the adjustment remote commander will display as shown in Fig. 5-4-1.

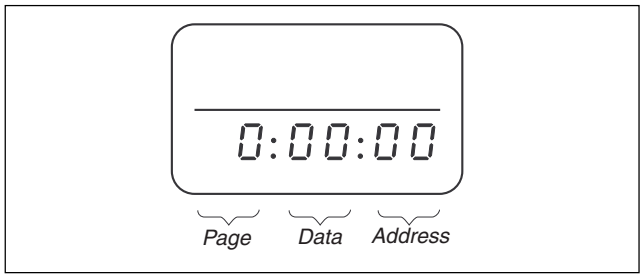


Fig. 5-4-1.

3) Operate the adjustment remote commander as follows.
   - Changing the page
     The page increases when the EDIT SEARCH+ button is pressed, and decreases when the EDIT SEARCH– button is pressed. There are altogether 20 pages, from 0 to F, 1B, 1C, 1E, 1F (Note1).

Hexadecimal notation	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
LCD Display	0	1	2	3	4	5	6	7	8	9	A	b	c	d	E	F
Decimal notation conversion value	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

   - Changing the address
     The address increases when the FF (►►) button is pressed, and decreases when the REW (◄◄) button is pressed. There are altogether 256 addresses, from 00 to FF.
   - Changing the data (Data setting)
     The data increases when the PLAY (►) button is pressed, and decreases when the STOP (■) button is pressed. There are altogether 256 data, from 00 to FF.
   - Writing the adjustment data
     The PAUSE button must be pressed to write the adjustment data (8, A, B, C, D, E, F, 1B, 1C, 1E, 1F page) in the nonvolatile memory. (The new adjusting data will not be recorded in the nonvolatile memory if this step is not performed.)(Note2)
4) After completing all adjustments, turn off the main power supply (8.4 V) once.

Note: When reading or writing the 1B, 1C, 1E, 1F page data, select page: 0, address: 10, and set data: 01, then select B, C, E or F page. The 1B, 1C, 1E or 1F page can be chosen by this data setting.
After reading or writing, reset the data of page: 0, address: 10 to "00".

2. Precautions Upon Using the Adjustment Remote Commander

Mishandling of the adjustment remote commander may erase the correct adjustment data at times. To prevent this, it is recommended that all adjustment data be noted down before beginning adjustments and new adjustment data after each adjustment.

4-2. DATA PROCESS

The calculation of the DDS display and the adjustment remote commander display data (hexadecimal notation) are required for obtaining the adjustment data of some adjustment items. In this case, after converting the hexadecimal notation to decimal notation, calculate and convert the result to hexadecimal notation, and use it as the adjustment data. Indicates the hexadecimal-decimal conversion table.

Hexadecimal-decimal Conversion Table

	Lower digit of hexadecimal / Upper digit of hexadecimal	0	1	2	3	4	5	6	7	8	9	A (A)	B (b)	C (c)	D (d)	E (E)	F (F)
	0	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	1	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
	2	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
	3	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
	4	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
	5	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
	6	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111
	7	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127
	8	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143
	9	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159
	A (A)	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175
①	B (b)	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191
	C (c)	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207
	D (d)	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223
	E (E)	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239
	F (F)	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255

②

Note: The characters shown in the parenthesis ( ) shown the display on the adjustment remote commander.

(Example) If the DDS display or the adjustment remote commander shows BD (bd);
Because the upper digit of the adjustment number is B (b), and the lower digit is D (d), the meeting point "189" of ① and ② in the above table is the corresponding decimal number.

Table. 5-4-1.

4-3. SERVICE MODE

Note: Before performing the adjustments, check the data of page : 0, address: 10 is "00". If not, set data: 00 to this address.

Additional note on adjustment

Note1: After the completion of the all adjustments, cancel the service mode by either of the following ways.
1) After data on page: C and D is restored, unplug the main power supply and remove the coin lithium battery. (In this case, date and time and menu setting have been set by users are canceled. Perform resetting.)
2) After data on page: C and D is restored, select page: 0, address: 01, and return the data to 00. And when data on page:2 and 3 are changed, return data to the original condition.

Note2: Before performing the adjustments, check the data of page: 0, address: 10 is "00". If not, set data: 00 to this address.

1. Setting the Test Mode

Page C	Address 3E

Data	Function
00	Normal
01	Test mode Various emergency prohibitions and releases Drum emergency, capstan emergency, loading motor emergency, reel emergency, tape top and end, DEW detection

Page D	Address 10

Data	Function
00	Normal
01	Forced camera power ON
02	Forced VTR power ON

- Before setting the data , select page: 0, address: 01, and set data: 01.
- For page C and D, the data set will be recorded in the non-volatile memory by pressing the PAUSE button of the adjustment remote commander. In this case, take note that the test mode will not be exited even when the main power is turned off (8.4Vdc).
- After completing adjustments/repairs, be sure to return the data of page: C address: 3E to 00, and the data of page: D address: 10 to 00, and press the PAUSE button of the adjustment remote commander. And select page: 0, address: 01, and set data: 00.

2. Emergence Memory Address

Page C	Address F4 to FF

Address	Contents
F4	EMG code when first error occurs
F6	Upper: MSW code when shift starts when first error occurs Lower: MSW code when first error occurs
F7	Lower: MSW code to be moved when first error occurs
F8	EMG code when second error occurs
FA	Upper: MSW code when shift starts when second error occurs Lower: MSW code when second error occurs
FB	Lower: MSW code to be moved when second error occurs
FC	EMG code when last error occurs
FE	Upper: MSW code when shift starts when last error occurs Lower: MSW code when last error occurs
FF	Lower: MSW code to be moved when last error occurs

When no error occurs in this unit, data "00" is written in the above addresses (F4 to FF). when first error occurs in the unit, the data corresponding to the error is written in the first emergency address (F4 to F7). In the same way, when the second error occurs, the data corresponding to the error is written in the second emergency address (F8 to FB).
Finally, when the last error occurs, the data corresponding to the error is written in the last emergency address (FC to FF).

Note : After completing adjustments, be sure to initialize the data of addresses F4 to FF to "00".

Initializing method:
1) Select page: 0, address: 01, and set data: 01.
2) Select page: 3, address: 01, set data: 37, and press the PAUSE button.
3) Select page: 0, address: 01, and set data: 00.

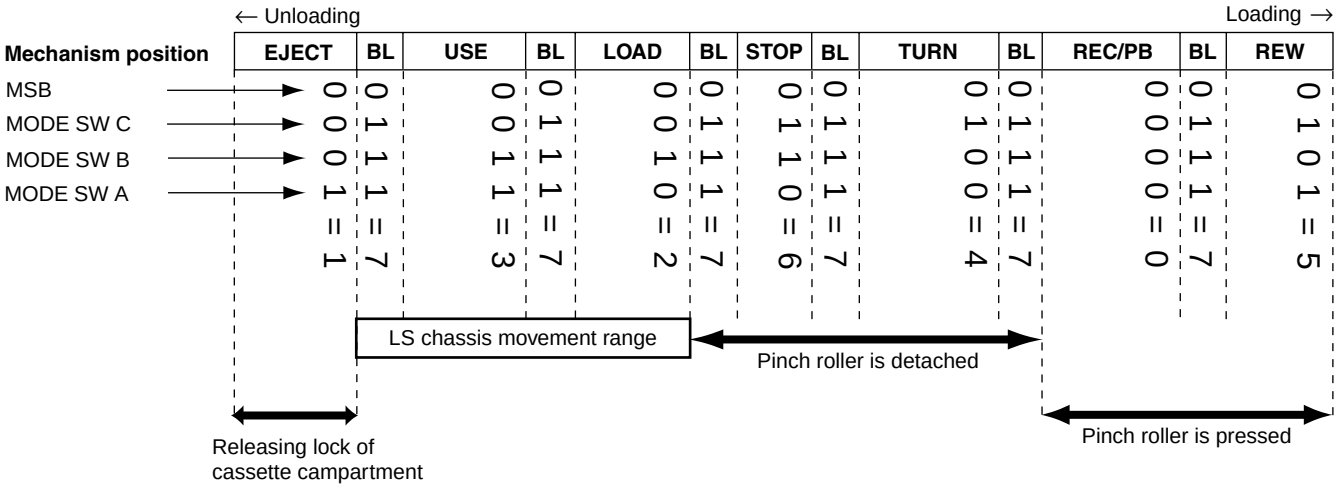
2-1. EMG Code (Emergency Code)

Codes corresponding to the errors which occur are written in C page, addresses F4, F8 and FC. The type of error indicated by the code are shown in the following table.

Code	Emergency Type
00	No error
10	Loading motor emergency during loading
11	Loading motor emergency during unloading
22	T reel emergency during normal rotation
23	S reel emergency during normal rotation
24	T reel emergency (Short circuit between S reel terminal and T reel terminal)
30	FG emergency at the start up of the capstan
40	FG emergency at the start up of the drum
42	FG emergency during normal rotation of the drum

2-2. MSW Code

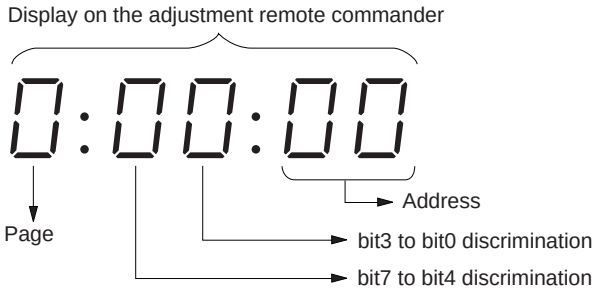
- The lower parts of the data of C page, addresses F6, FA and FE represent the MSW codes (mode switch mechanism position) when errors occurs.
- The upper parts of the data of C page, addresses F6, FA and FE represent, when the mechanism position is to be moved, the MSW codes at the start movement (when moving the loading motor).
- The lower parts of the data of C page, addresses F7, FB and FF represent the MSW codes of the desired movement when the mechanism position is to be moved.



Mechanism Position	MSW Code	Contents
EJECT	1	Position at which the cassette compartment lock is released. The mechanism will not move any further in the unloading direction.
BL	7	BLANC code. Between two codes. The mechanism will not be stopped by this code while it is operating.
USE	3	EJECT completion position. When the cassette is ejected, the mechanism will stop at this position.
LOAD	2	Code during loading/unloading. Code that is used while the LS chassis is moving.
STOP	6	Normal stop position. The pinch roller separates, the tension regulator returns, and the brakes of both reels turn on.
TURN	4	Position at which is used when the pendulum gear swings from S to T or from T to S.
REC/PB	0	PB, REC, CUE, REV, PAUSE, FF positions. The pinch roller is pressed and tension regulator is on.
REW	5	REW position. REW are carried at this position. The mechanism will not move any further in the loading direction.

3. Bit Value Discrimination

Bit values must be discriminated using the display data of the adjustment remote commander for the following items. Us the table below to discriminate if the bit value is "1" or "0".



(Example) If the remote commander display is "8E", bit value from bit 7 to bit 4 can be discriminated from the column Ⓐ, and those from bit 3 to bit 0 from column Ⓑ.

	Display on the adjustment remote commander	Bit values			
		bit3 or bit7	bit2 or bit6	bit1 or bit5	bit0 or bit4
	0	0	0	0	0
	1	0	0	0	1
	2	0	0	1	0
	3	0	0	1	1
	4	0	1	0	0
	5	0	1	0	1
	6	0	1	1	0
	7	0	1	1	1
Ⓐ	8	1	0	0	0
	9	1	0	0	1
	A (A)	1	0	1	0
	B (b)	1	0	1	1
	C (C)	1	1	0	0
	D (d)	1	1	0	1
Ⓑ	E (E)	1	1	1	0
	F (F)	1	1	1	1

4. Switch check (1)

Page 7	Address 0E

Bit	Function	When bit value = 1	When bit value = 0
0	POWER SW (VTR MODE SW) (SS-1380 block S001)	ON (VCR/PLAYER)	OFF
1	POWER SW (CAM MODE SW) (SS-1380 block S001)	ON (CAMERA)	OFF
2	START/STOP SW (SS-1380 block S002)	ON	OFF
3	EJECT SW (SS-1380 block S003)	ON	OFF
4	CC DOWN SW (Mechanism chassis)	ON (DOWN)	OFF (UP)
5	PHOTO FREEZE SW (SS-1380 block S004)	ON	OFF
6	POWER SW (PHOTO STBY SW) (SS-1380 block S001)	ON (MEMORY)	OFF
7			

Using method:

1) Select page: 7, address: 0E.
2) By discriminating the bit value of display data, the state of the switch can be discriminated.

5. Switch check (2)

Page 7	Address 0C

Bit	Function	When bit value = 1	When bit value = 0
1	AUDIO/VIDEO jack (FP-410 flexible J201)	Used	Not used
2	S VIDEO jack (FP-410 flexible J201)	Used	Not used
3	MIC jack (FP-411 flexible J302)	Used	Not used

Using method:

1) Select page: 7, address: 0C.
2) By discriminating the bit value of display data, the state of the switch can be discriminated.

6. Switch check (3)

Page 3	Address 61

Bit	Function	When bit value = 1	When bit value = 0
6	HEADPHONS jack (FP-411 flexible J301)	Used	Not used

Using method:

1) Select page: 3, address: 61.
2) By discriminating the bit value of display data, the state of the switch can be discriminated.

7. Switch check (4)

Page 2	Address 60 to 65

Using method:

1) Select page: 2, address: 60 to 65.
2) By discriminating the display data, the pressed key can be discriminated.

Address	Data							
	00 to 0C	0D to 24	25 to 3F	40 to 5D	5E to 81	82 to AA	AB to D7	D8 to FF
60 (KEY AD0) (IC5001 ⑲)	SUPER NIGHT SHOT (FK-2500) (S401)	STOP (FK-2500) (S404)	FF (FK-2500) (S407)	REW (FK-2500) (S409)	PLAY (FK-2500) (S403)	REC (FK-2500) (S406,408)		No key input
61 (KEY AD1) (IC5001 ⑳)	PAUSE (FK-2500) (S405)	FOCUS (CF-2500) (S004)	BACK LIGHT (CF-2500) (S016)	FADER (CF-2500) (S010)	EXPOSURE (CF-2500) (S027)	MENU EXECUTE (CF-2500) (S007)	PANEL CLOSE (CF-2500) (S001)	PANEL OPEN (CF-2500) (S001)
62 (KEY AD2) (IC5001 ㉑)		EDIT SEARCH + (CF-2500) (S024)	EDIT SEARCH – (CF-2500) (S025)					No key input
63 (KEY AD3) (IC5001 ㉕)	END SEARCH (CF-2500) (S003)	PB ZOOM (CF-2500) (S006)	TITLE (CF-2500) (S009)	MENU (CF-2500) (S012)	VOLUME + (CF-2500) (S015)	VOLUME – (CF-2500) (S022)	DISPLAY (CF-2500) (S019)	No key input
64 (KEY AD4) (IC5001 ㉖)	MEMORY INDEX (CF-2500) (S026)	MPEG PLAY (CF-2500) (S005)	MEMORY MIX (CF-2500) (S029)	MEMORY DELETE (CF-2500) (S028)	MEMORY + (CF-2500) (S013)	MEMORY – (CF-2500) (S017)	MEMORY PLAY (CF-2500) (S018)	No key input
65 (KEY AD5) (IC5001 ㉗)		PHOTO (PHOTO START) (SS-1380) (S004)	PANEL REVERSE (FP-412) (S601)					PANEL NORMAL (FP-412) (S601)

8. Record of Use check (1)

Page 7	Address C8 to CD

Address	Function		Remarks
C8	User initial power	Year	After setting the clock, set the date of power on next
C9	on date	Month	
CA	(BCD code)	Day	
CB	Final condensation	Year	
CC	occurrence date	Month	
CD	(BCD code)	Day	

Using method:

1) The record of use data is displayed at addresses: A2 to AA.
   Note: This data will be kept even if the lithium battery (CF-2500 block BT101) is removed.

9. Record of Use check (2)

Page 7	Address A7 to A9

Address	Function		Remarks
A7	Drum rotation counted time (BCD code)	Hour (H)	100000 place digit and 10000 place digit (decimal digit)
A8		Hour (M)	1000 place digit and 100 place digit (decimal digit)
A9		Hour (L)	10 place digit and 1 place digit (decimal digit)

Using method:

1) The record of use data is displayed at addresses: A7 to A9.
   Note: This data will be kept even if the lithium battery (CF-2500 block BT101) is removed.

Initializing method:

1) Select page: 7, address: 00, set data: 71, and press PAUSE button.
2) Select page: 7, address: 01, set data: 71, and press PAUSE button.
3) Select page: 7, address: 02, and check the data is “01”.

10. Record of Self-diagnosis check

Page 7	Address B0 to C6

Address	Self-diagnosis code
B0	“Repaired by” code (Occurred 1st time) *1
B1	“Block function” code (Occurred 1st time)
B2	“Detailed” code (Occurred 1st time)
B4	“Repaired by” code (Occurred 2nd time) *1
B5	“Block function” code (Occurred 2nd time)
B6	“Detailed” code (Occurred 2nd time)
B8	“Repaired by” code (Occurred 3rd time) *1
B9	“Block function” code (Occurred 3rd time)
BA	“Detailed” code (Occurred 3rd time)
BC	“Repaired by” code (Occurred 4th time) *1
BD	“Block function” code (Occurred 4th time)
BE	“Detailed” code (Occurred 4th time)
C0	“Repaired by” code (Occurred 5th time) *1
C1	“Block function” code (Occurred 5th time)
C2	“Detailed” code (Occurred 5th time)
C4	“Repaired by” code (Occurred the last time) *1
C5	“Block function” code (Occurred the last time)
C6	“Detailed” code (Occurred the last time)

*1 : “01” → “C”, “03” → “E”

Using method:

1) The past self-diagnosis codes are displayed at addresses: BC to C6. Refer to “SELF-DIAGNOSIS FUNCTION” for detail of the self-diagnosis code.
   Note: This data will be kept even if the lithium battery (CF-2500 block BT101) is removed.

COVER

SECTION 6
REPAIR PARTS LIST

6-1. EXPLODED VIEWS

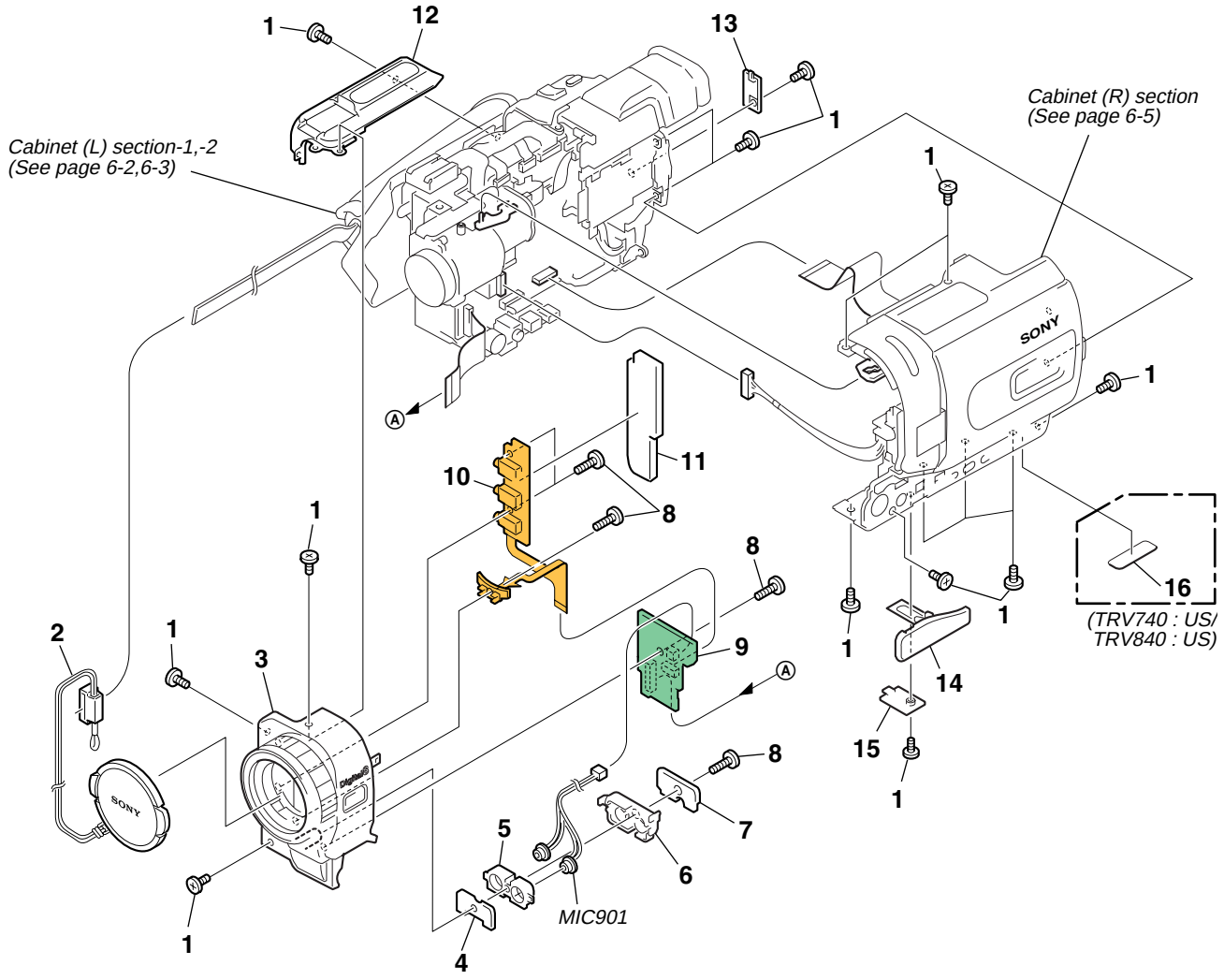
NOTE:

- -XX, -X mean standardized parts, so they may have some differences from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Abbreviation
  CND : Canadian model
  KR : Korea model
  JE : Tourist model
  AUS : Australian model
  HK : Hong Kong model
  CH : Chinese model
  EE : East European model
  NE : North European model
  RU : Russian model
  AR : Argentina model

The components identified by mark ⚠or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

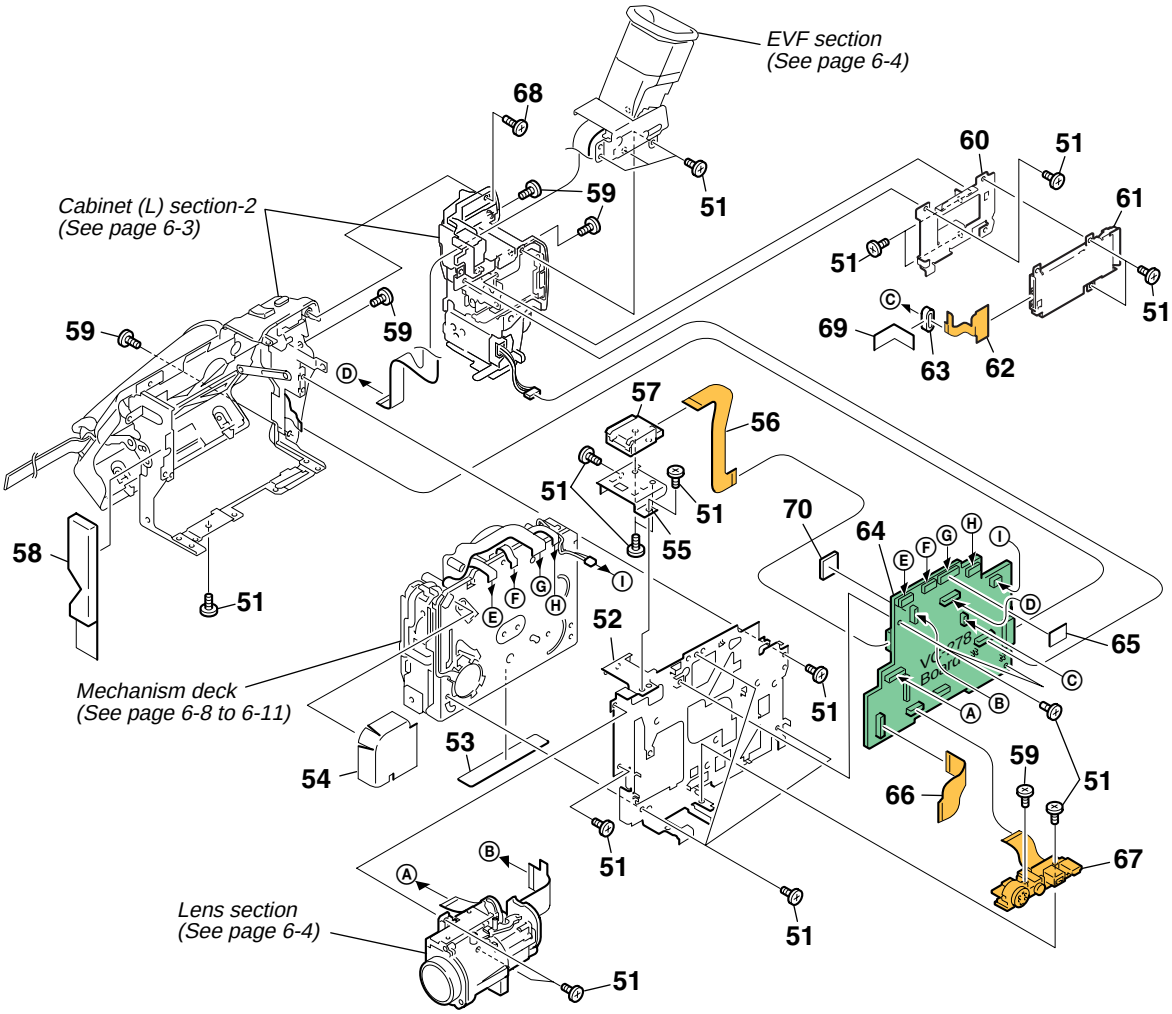
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

6-1-1. OVERALL SECTION



Ref. No.	Part No.	Description
1	3-067-347-01	MI SCREW M2 (H)
2	X-3949-376-1	CAP (N) ASSY, LENS
3	X-3952-247-1	PANEL ASSY (25), F
4	3-072-279-01	CUSHION (F), MICROPHONE
5	3-072-278-01	HOLDER, MICROPHONE
6	3-072-277-01	RETAINER, MICROPHONE
7	3-072-307-01	SHEET, MICROPHONE
8	3-065-567-01	TAPPING (M1.7)
9	A-7078-047-A	SI-032 BOARD, COMPLETE
10	1-683-627-21	FP-411 FLEXIBLE BOARD
11	3-072-309-01	CUSHION (1), F
12	3-065-326-01	CABINET (UPPER)
13	3-072-271-01	LID (BT), CPC
14	3-072-343-01	COVER, JACK
15	3-072-344-01	RETAINER, JACK COVER
* 16	3-704-367-01	LABEL (TRV740:US/TRV840:US)
MIC901	1-542-477-11	MICROPHONE

6-1-2. CABINET (L) SECTION-1

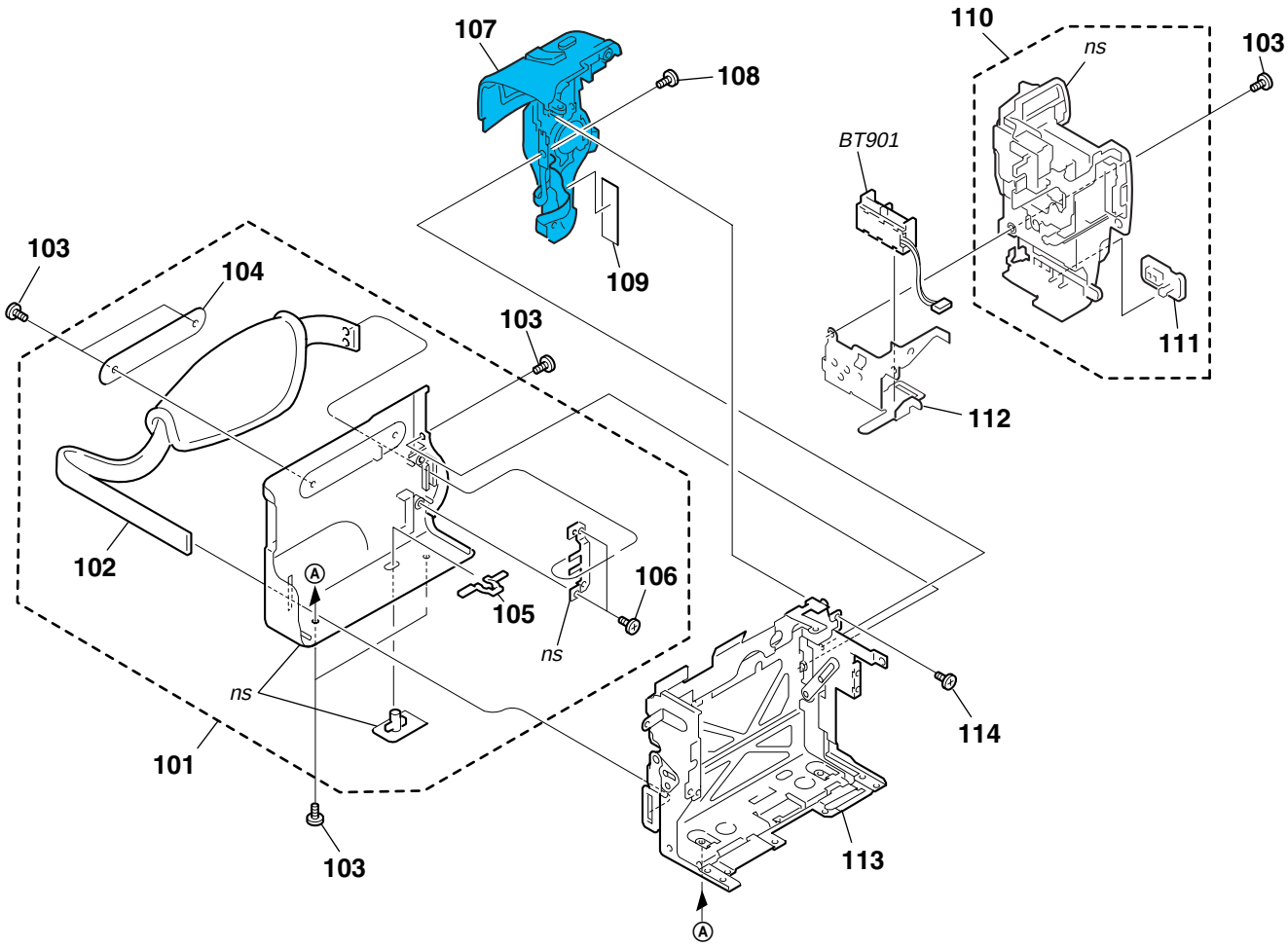


Ref. No.	Part No.	Description
51	4-974-725-01	SCREW (M1.7X2.5), P
52	3-072-267-01	FRAME, MD
53	3-065-662-01	LABEL, LS CAUTION
54	3-066-169-01	SHEET, MD
55	3-072-268-01	FRAME, SHOE
56	1-680-118-11	FP-264 FLEXIBLE BOARD
57	1-815-124-11	CONNECTOR, EXTERNAL (HOT SHOE)
58	3-072-308-01	COVER, MD
59	3-067-347-01	MI SCREW M2 (H)
60	3-072-273-01	HOLDER, MS
61	1-816-271-11	CONNECTOR, MEMORY STICK 10P
62	1-683-625-11	FP-409 FLEXIBLE BOARD
63	1-500-226-11	BEAD, FERRITE

Ref. No.	Part No.	Description
64	A-7012-212-A	VC-278 (GNA) BOARD, COMPLETE (SERVICE) (TRV740/TRV840)
64	A-7012-362-A	VC-278 (GPAO) BOARD, COMPLETE (SERVICE) (TRV738E)
64	A-7012-363-A	VC-278 (GPA) BOARD, COMPLETE (SERVICE) (TRV740E)
65	3-066-759-01	SHEET, VC
66	1-683-623-11	FP-406 FLEXIBLE BOARD
67	1-683-626-21	FP-410 FLEXIBLE BOARD
68	3-065-567-01	TAPPING (M1.7)
69	3-941-343-21	TAPE (A)
70	3-075-983-01	SHEET (25) 2, M

6-1-3. CABINET (L) SECTION-2

ns : not supplied

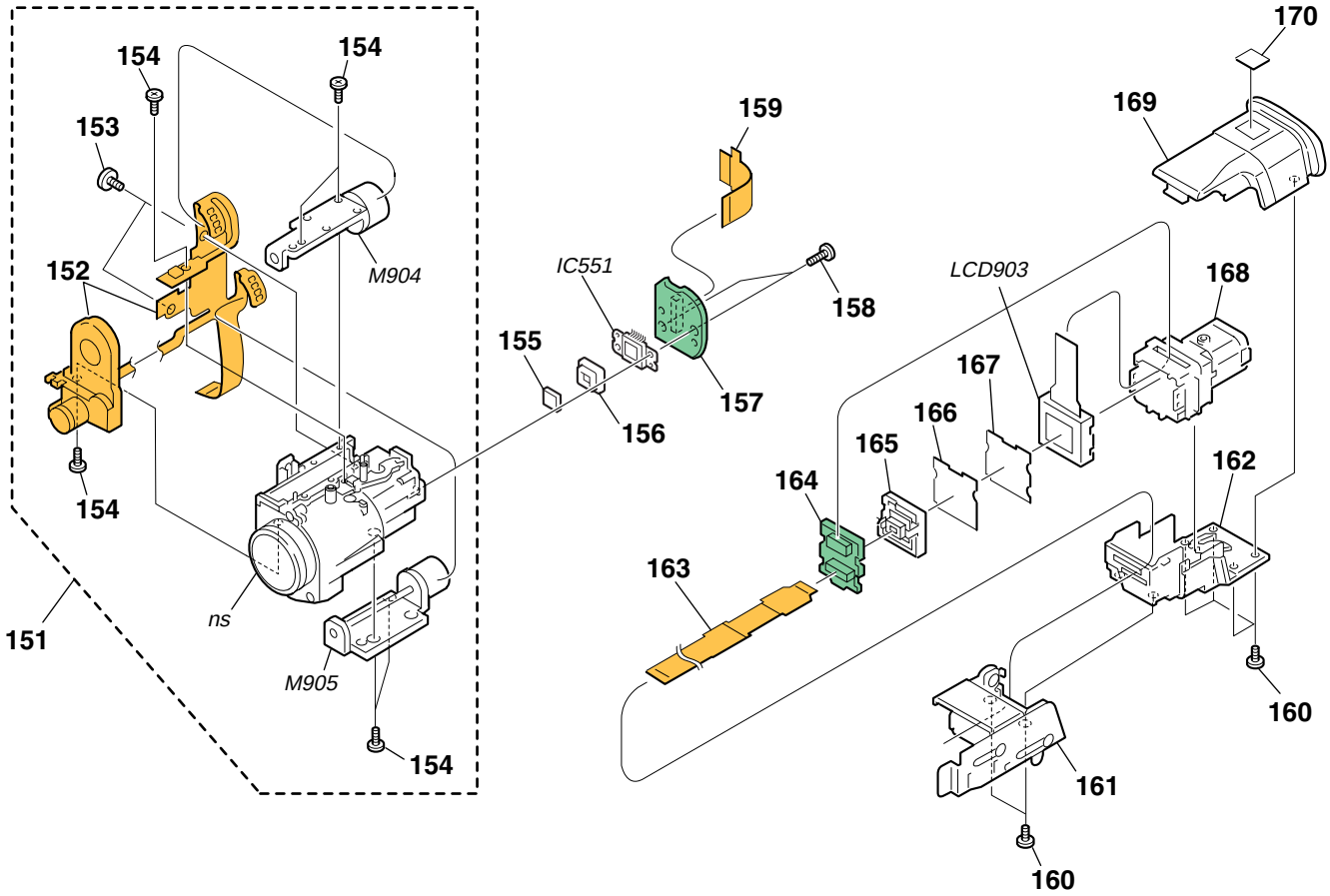


Ref. No.	Part No.	Description
101	X-3951-159-1	CABINET (L) ASSY
102	3-052-815-01	BELT (ES), GRIP
103	3-067-347-01	MI SCREW M2 (H)
104	3-065-308-01	LABEL (L)
105	3-978-765-01	SLIDER, G LOCK
106	3-713-791-01	SCREW (M1.7X4), TAPPING, P2
107	1-476-415-11	SWITCH BLOCK, CONTROL (SS-1380) (TRV740/TRV740E/TRV840)
107	1-476-415-31	SWITCH BLOCK, CONTROL (SS-1380) (TRV738E)

Ref. No.	Part No.	Description
108	4-974-725-01	SCREW (M1.7X2.5), P
109	3-941-343-21	TAPE (A)
110	X-3952-148-1	PANEL ASSY (MS), BATTERY
111	3-072-305-01	LID (2500), JACK
112	3-072-274-01	SHEET METAL (LOWER), STRAP
113	X-3952-136-1	FRAME ASSY (25), CS
114	3-065-567-01	TAPPING (M1.7)
BT901	1-694-772-11	TERMINAL BOARD, BATTERY

6-1-4. LENS, EVF SECTION

ns : not supplied



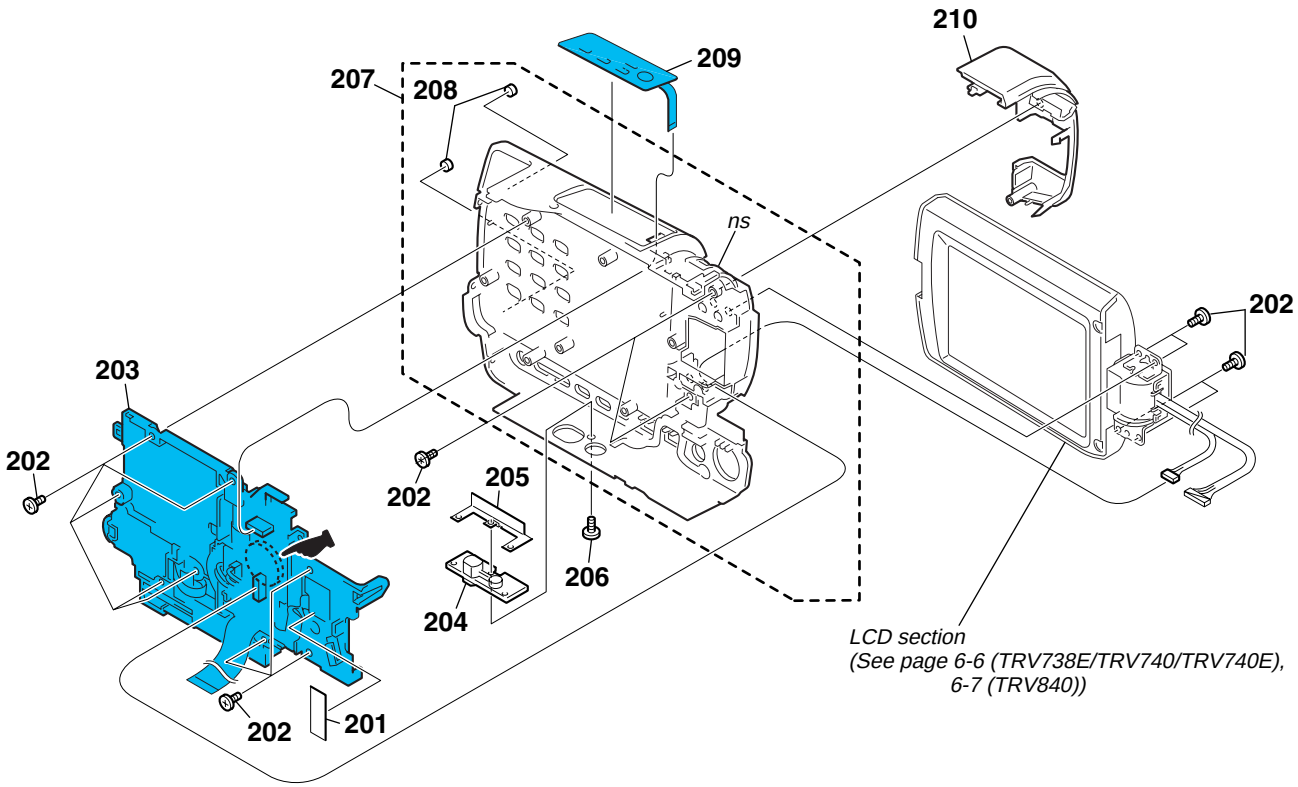
Be sure to read “Precautions upon replacing CCD imager” on page 4-7 when changing the CCD imager.

Ref. No.	Part No.	Description
151	8-848-754-01	DEVICE, LENS LSV-740A
152	1-758-743-11	IRIS (IR740)
153	3-056-022-01	TAPPING (B1.7X3.5), HEAD
154	3-713-791-35	SCREW (M1.7X5), TAPPING, P2
155	1-758-569-11	FILTER BLOCK, OPTICAL
156	3-053-973-01	RUBBER (W), SEAL
157	A-7078-109-A	CD-358 BOARD, COMPLETE
158	3-318-203-11	SCREW (B1.7X6), TAPPING
159	1-680-120-11	FP-317 FLEXIBLE BOARD
160	3-065-567-01	TAPPING (M1.7)
161	X-3951-165-1	HINGE ASSY, VF
162	X-3952-143-1	CABINET (LOWER) ASSY, EVF

Ref. No.	Part No.	Description
163	1-683-624-11	FP-407 FLEXIBLE BOARD
164	A-7078-049-A	LB-076 BOARD, COMPLETE
165	3-065-058-01	GUIDE, LAMP
166	3-072-211-01	ILLUMINATOR
167	3-072-210-01	SHEET, PRISM
168	X-3952-214-1	LENS (B) ASSY, VF
169	X-3952-142-1	CABINET (UPPER) ASSY, EVF
170	3-065-376-01	LABEL (138), B
IC551	A-7012-228-A	CCD BLOCK ASSY (CCD IMAGER)
LCD903	8-753-028-49	LCX032AP-5
M904	1-763-806-11	MOTOR, STEPPING Z740A (ZOOM)
M905	1-763-807-11	MOTOR, STEPPING F740A (FOCUS)

6-1-5. CABINET (R) SECTION

ns : not supplied

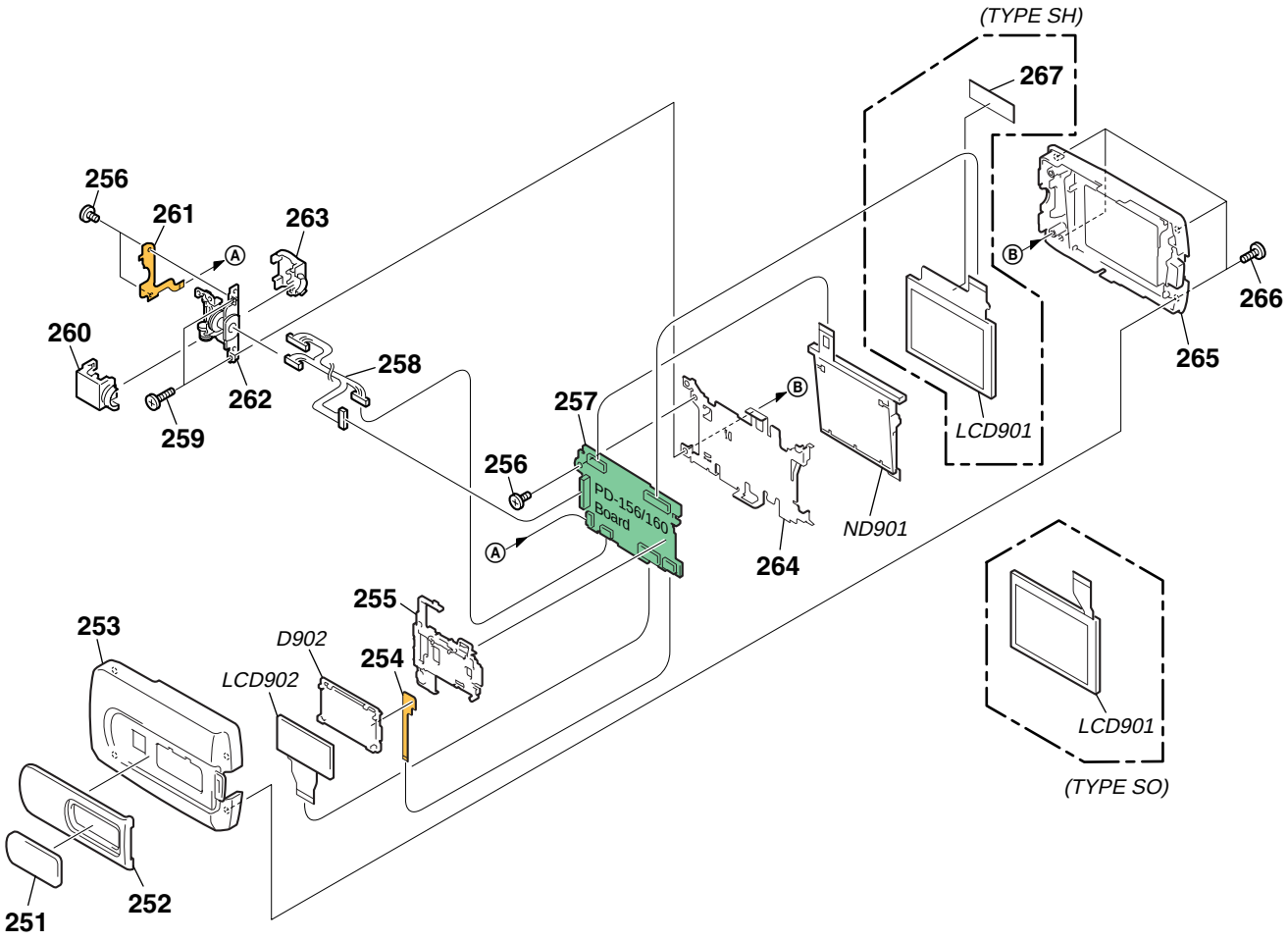


: The printed wiring board of the Control switch block (CF-2500) on which BT001 (lithium battery) is mounted, is not shown.

CAUTION :
Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type.

Ref. No.	Part No.	Description
201	3-941-343-21	TAPE (A)
202	3-948-339-61	TAPPING
203	1-477-085-21	SWITCH BLOCK, CONTROL (CF-2500)
204	3-065-373-01	SCREW (Y), TRIPOD
205	3-072-455-01	RETAINER, TRIPOD
206	3-067-347-01	MI SCREW M2 (H)
207	X-3952-140-1	CABINET R (2) ASSY (TRV740)
207	X-3952-146-1	CABINET R (2) ASSY (TRV738E)
207	X-3952-186-1	CABINET R (3) ASSY (TRV840)
207	X-3952-253-1	CABINET R (2) ASSY (TRV740E)
208	3-959-978-02	CUSHION, PANEL
209	1-477-084-41	SWITCH BLOCK, CONTROL (FK-2500) (TRV738E)
209	1-477-084-51	SWITCH BLOCK, CONTROL (FK-2500) (TRV740/TRV740E/TRV840)
210	X-3952-141-1	RING (2) ASSY, ORNAMENTAL (TRV740)
210	X-3952-169-1	RING (2) ASSY, ORNAMENTAL (TRV738E/TRV740E)
210	X-3952-187-1	RING (3) ASSY, ORNAMENTAL (TRV840)

6-1-6. LCD SECTION (2.5 INCH LCD MODEL) (TRV738E/TRV740/TRV740E)



TYPE SH :TRV738E/TRV740E:AEP,EE,NE,RU
TYPE SO :TRV740/TRV740E:E,HK,AUS,CH,JE

Ref. No.	Part No.	Description
251	3-072-272-11	WINDOW, LCD (TRV740)
251	3-072-272-21	WINDOW, LCD (TRV738E)
251	3-072-272-31	WINDOW, LCD (TRV740E)
252	X-3952-197-1	COVER (2) ASSY (M), CPC
253	3-072-341-11	CABINET (C (2)), P
254	1-683-629-11	FP-414 FLEXIBLE BOARD
255	3-072-286-01	HOLDER, LCD
256	4-974-725-01	SCREW (M1.7X2.5), P
257	A-7078-052-A	PD-160 (X6)(SO) BOARD, COMPLETE (TYPE SO MODEL)
257	A-7078-096-A	PD-156 (XC12)(SH) BOARD, COMPLETE (TYPE SH MODEL)
258	1-961-556-11	HARNESS (PD-117)
259	3-318-203-11	SCREW (B1.7X6), TAPPING
260	3-072-288-11	COVER (C), HINGE
261	1-683-628-21	FP-412 FLEXIBLE BOARD
262	X-3952-147-1	HINGE ASSY

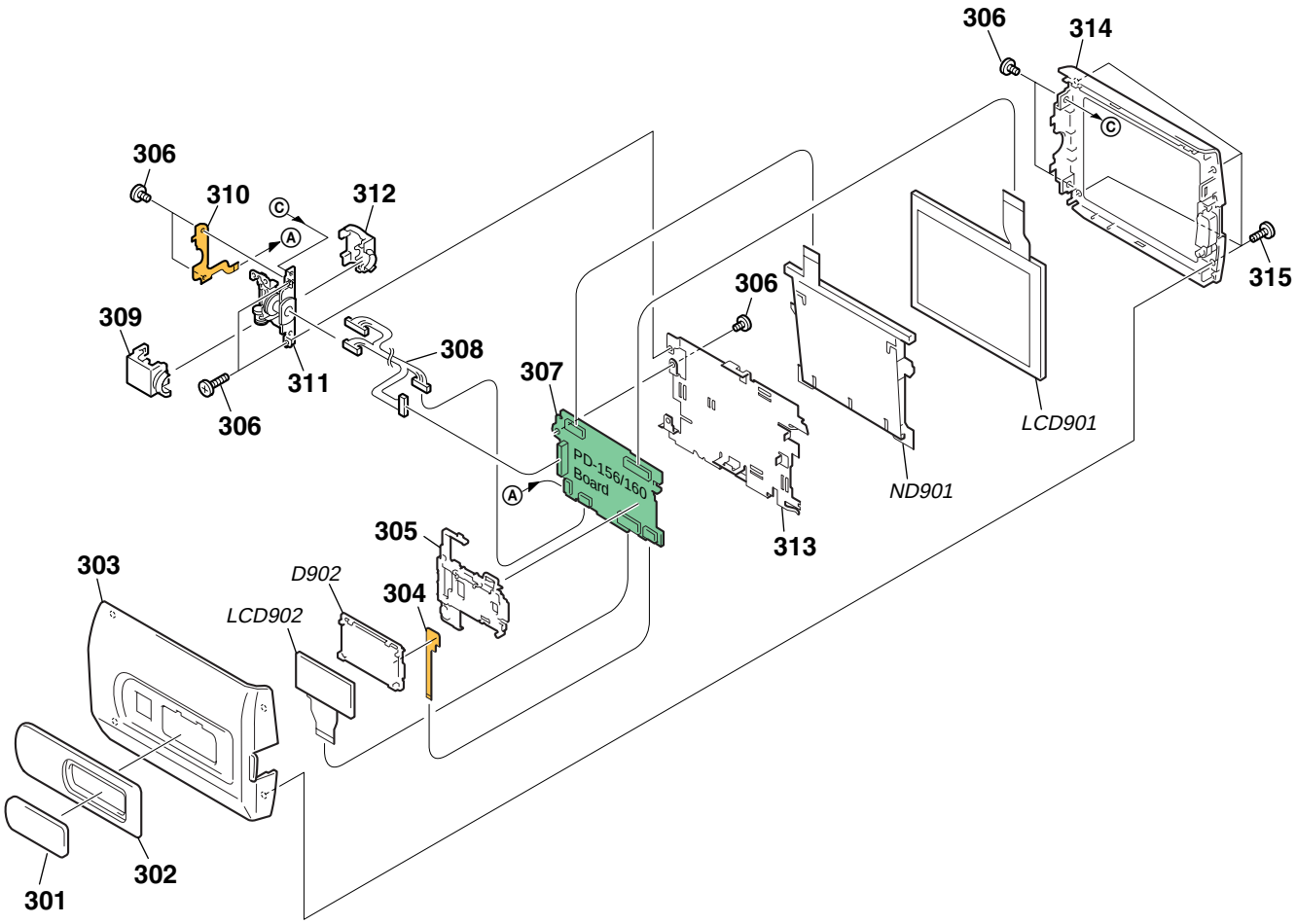
Ref. No.	Part No.	Description
263	3-072-287-11	COVER (M), HINGE
264	3-072-403-01	FRAME (2), P
265	X-3952-151-1	P CABINET M (2) ASSY (M)
266	3-065-567-01	TAPPING (M1.7)
267	3-075-098-01	SHEET (SH), LCD INSULATING (TYPE SH MODEL)
⚠D902	1-518-721-11	LIGHT, BACK
⚠ND901	1-518-796-11	TUBE, FLUORESCENT,COLD CATHODE (TYPE SO MODEL)
⚠ND901	1-518-798-21	TUBE, FLUORESCENT,COLD CATHODE (TYPE SH MODEL)
LCD901	1-803-853-21	INDICATOR MODULE LIQUID CRYST (TYPE SH MODEL)(Note)
LCD901	8-753-050-65	ACX308AK-1 (TYPE SO MODEL)(Note)
LCD902	A-7012-233-A	INDICATION LCD BLOCK ASSY

Note : LCD901 type check is refer to page 5-32 for “1-5-1. LCD Type Check” of this manual .

Note :
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Note :
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

6-1-7. LCD SECTION (3.5 INCH LCD MODEL) (TRV840)



Ref. No.	Part No.	Description
301	3-072-272-41	WINDOW, LCD
302	X-3952-198-1	COVER (3) ASSY (M), CPC
303	X-3952-153-1	CABINET (C) (3) ASSY (M), P
304	1-683-629-11	FP-414 FLEXIBLE BOARD
305	3-072-286-01	HOLDER, LCD
306	4-974-725-01	SCREW (M1.7X2.5), P
307	A-7078-145-A	PD-160 (ZS12)(SO) BOARD, COMPLETE (TYPE SO MODEL)
307	A-7078-152-A	PD-156 (ZC12)(CA) BOARD, COMPLETE (TYPE CA MODEL)
308	1-961-556-11	HARNESS (PD-117)
309	3-072-288-11	COVER (C), HINGE

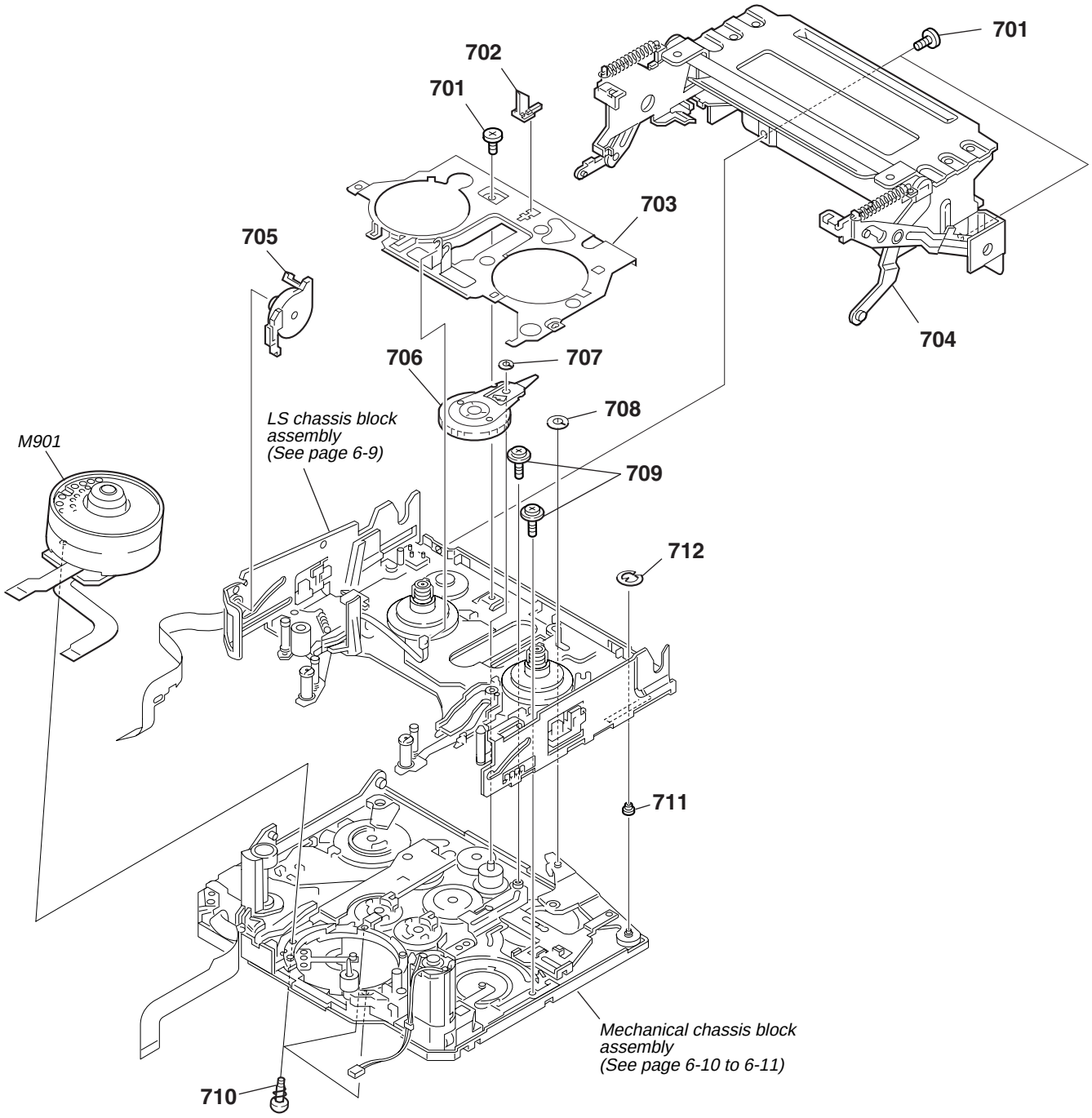
Ref. No.	Part No.	Description
310	1-683-628-21	FP-412 FLEXIBLE BOARD
311	X-3952-147-1	HINGE ASSY
312	3-072-287-11	COVER (M), HINGE
313	3-072-289-01	FRAME (3), P
314	X-3952-152-1	CABINET (M) (3) ASSY (M), P
315	3-065-567-01	TAPPING (M1.7)
⚠D902	1-518-721-11	LIGHT, BACK
⚠ND901	1-517-855-31	TUBE, FLUORESCENT,COLD CATHODE
LCD901	1-803-861-31	INDICATOR MODULE LIQUID CRYST (TYPE CA MODEL)(Note)
LCD901	8-753-051-00	ACX310AK-1 (TYPE SO MODEL)(Note)
LCD902	A-7012-233-A	INDICATION LCD BLOCK ASSY

Note : LCD901 type check is refer to page 5-32 for “1-5-1. LCD Type Check” of this manual .

Note :
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Note :
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

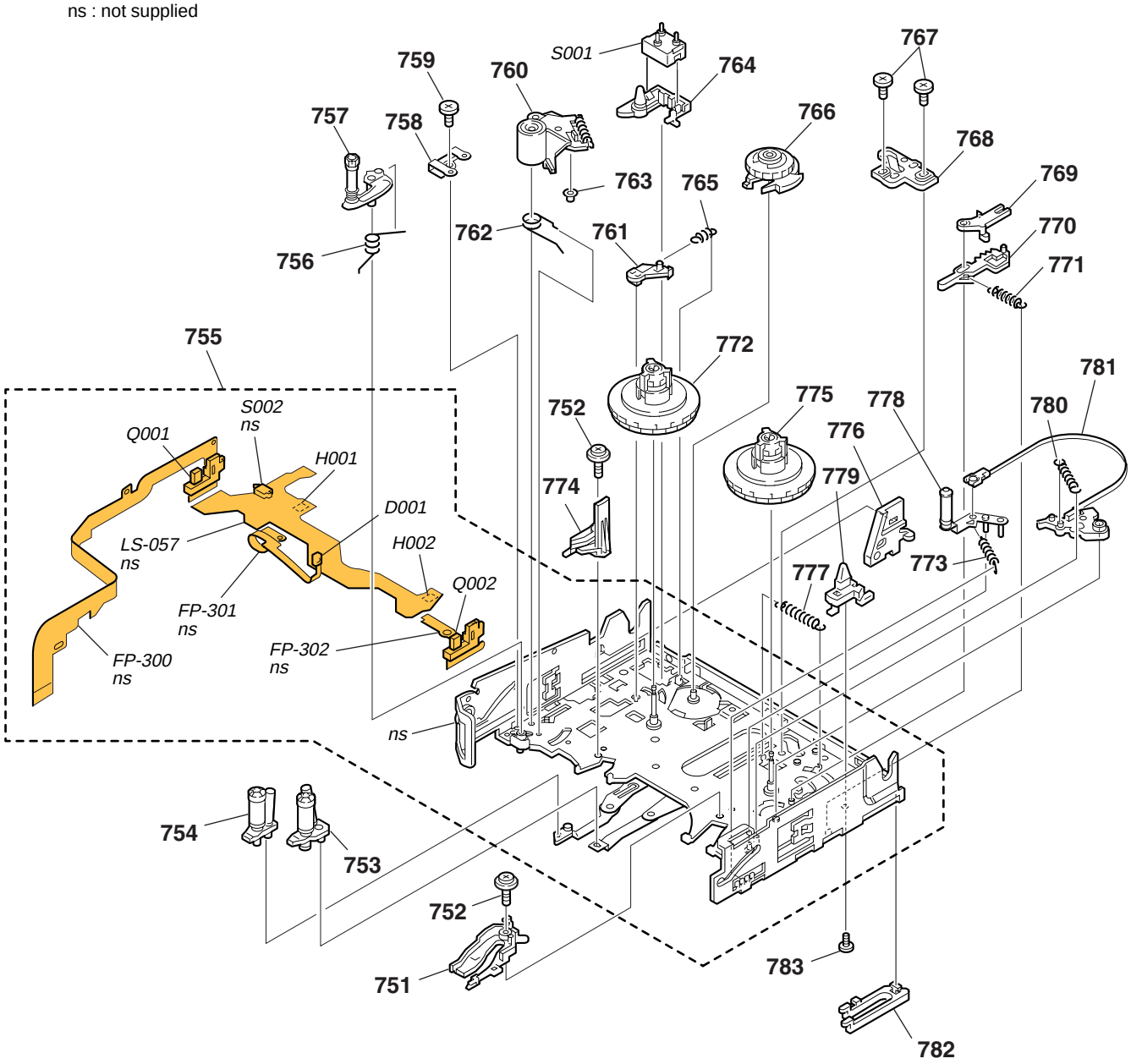
6-1-8. CASSETTE COMPARTMENT ASSY, DRUM ASSY



Ref. No.	Part No.	Description
701	3-065-932-01	PAN (2 MAIN M1.4X1.6), CAMERA
702	3-065-895-01	LEVER, REEL RELEASE
703	3-065-896-01	PLATE, BLIND
704	X-3951-298-1	CASSETTE COMPARTMENT ASSY
705	X-3951-302-1	DAMPER ASSY
706	X-3951-297-1	GEAR ASSY, R DRIVE
707	3-065-840-01	CUT (0.98X3X0.13), LUMILER (W)
708	3-065-935-01	HLC CUT 1.8X4X0.5
709	3-947-503-01	SCREW (M1.4)
710	X-3951-299-1	SCREW ASSY, DRUM FITTING
711	3-074-309-01	ROLLER A, LS GUIDE
712	7-624-101-04	STOP RING 1.2 (E TYPE)
M901	A-7048-951-A	DRUM (DKH-04A-R) (SERVICE)

6-1-9. LS CHASSIS BLOCK ASSEMBLY

ns : not supplied

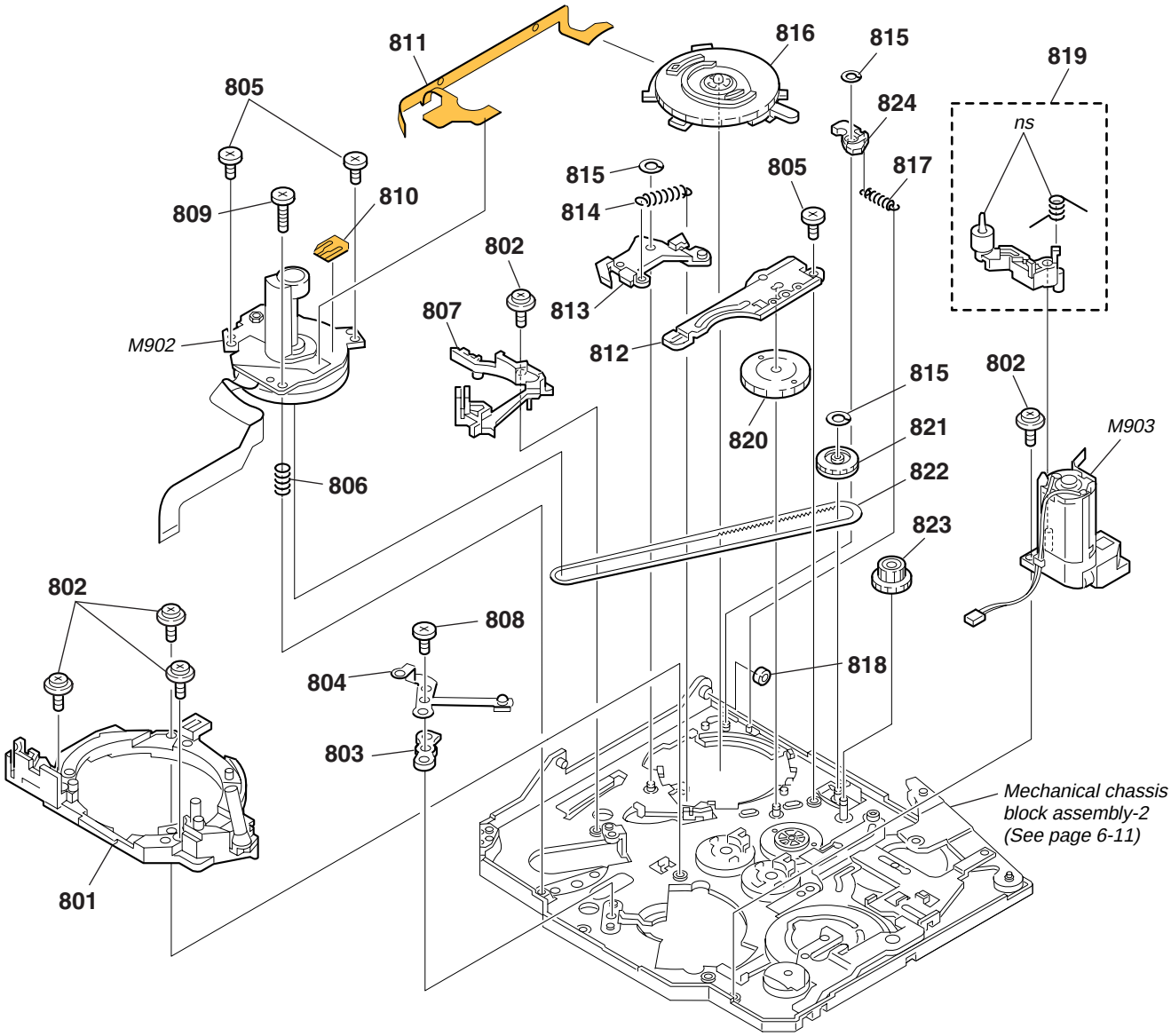


Ref. No.	Part No.	Description
751	3-065-822-02	RAIL (S), GUIDE
752	3-947-503-01	SCREW (M1.4)
753	A-7096-416-B	BASE (S) BLOCK ASSY, GUIDE
754	A-7096-415-A	BASE (T) BLOCK ASSY, GUIDE
755	A-7096-426-A	CHASSIS ASSY, LS
756	3-065-802-01	SPRING, TG7 ARM
757	A-7096-414-A	ARM BLOCK ASSY, TG7
758	3-065-801-01	RETAINER, TG7
759	3-065-932-01	PAN (2 MAIN M1.4X1.6), CAMERA
760	X-3951-303-1	ARM ASSY, PINCH
761	3-065-823-01	ARM, T RATCHET
762	3-065-794-01	ROAD (SPR), PINCH ARM
763	3-065-792-01	ROLLER, P LIM ARM
764	3-065-834-01	GUIDE (T), CASSETTE
765	3-065-824-01	SPRING, T RATCHET
766	A-7096-417-A	SOFT ASSY, T
767	7-627-852-38	SCREW,PRECISION +P1.7X1.8TYPE3
768	3-065-832-01	PLATE, LS CAM
769	3-065-828-01	ARM, S RATCHET
770	3-065-829-01	PLATE, S RATCHET (RE)

Ref. No.	Part No.	Description
771	3-065-830-01	SPRING, S RATCHET
772	X-3951-288-1	TABLE (T) ASSY, REEL
773	3-065-819-01	SPRING, TG1 ARM
774	3-065-821-01	RAIL (T), GUIDE
775	X-3951-289-1	TABLE (S) ASSY, REEL
776	3-065-833-01	GUIDE, LOCK
777	3-065-831-01	PLATE (SPR), RE RETURN
778	X-3951-304-1	ARM ASSY, TG1
779	3-065-835-01	GUIDE (S), CASSETTE
780	3-065-820-01	SPRING, RVS ARM
781	X-3951-296-1	BAND (ASSY), BT
782	3-065-836-01	COVER, LS GREASE
783	3-067-167-01	SCREW (M1.4X2), CAMERA TAPPING
D001	8-719-988-42	DIODE GL453 (TAPE LED)
H001	8-719-033-37	ELEMENT, HALL HW-105C (T REEL)
H002	8-719-033-37	ELEMENT, HALL HW-105C (S REEL)
Q001	8-729-907-25	PHOTO TRANSISTOR PT4850F (TAPE TOP)
Q002	8-729-907-25	PHOTO TRANSISTOR PT4850F (TAPE END)
S001	1-692-614-11	SWITCH, PUSH (3 KEY) (REC PROOF)

6-1-10. MECHANICAL CHASSIS BLOCK ASSEMBLY-1

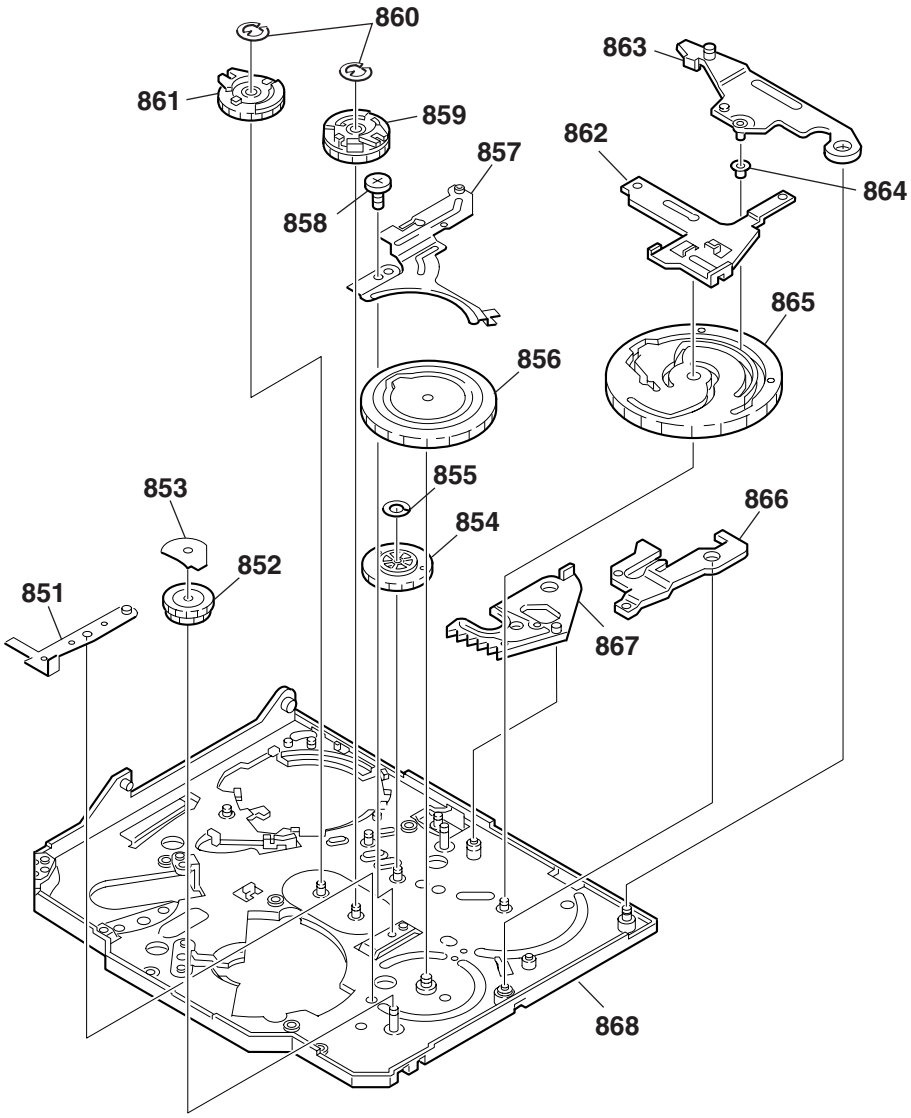
ns : not supplied



Ref. No.	Part No.	Description
801	A-7096-422-A	BASE ASSY, DRUM
802	3-947-503-01	SCREW (M1.4)
803	3-065-928-01	SPACER, GROUND
804	3-065-927-01	GROUND, DRUM
805	3-065-932-01	PAN (2 MAIN M1.4X1.6), CAMERA
806	3-067-154-01	SPRING, CAPSTAN
807	3-065-931-01	RAIL (T2), GUIDE
808	X-3947-398-1	SCREW ASSY, M1.7 PW
809	3-065-933-01	PAN (2 MAIN 1.4X4.5), CAMERA
810	1-677-049-11	FP-228 FLEXIBLE BOARD
811	1-680-434-11	FP-299 FLEXIBLE BOARD
812	3-065-877-01	PLATE (T), GUIDE LOCK
813	X-3951-301-1	PLATE ASSY, PINCH PRESSURE

Ref. No.	Part No.	Description
814	3-065-881-01	SPRING, P PRESSURE PLATE
815	3-065-934-01	HLW CUT 0.98X3X0.25
816	1-786-096-11	SWITCH, ROTARY
817	3-065-898-01	SPRING, EJECT ARM
818	3-065-870-01	ROLLER, LS GUIDE
819	A-7096-421-A	ARM ASSY, HCL
820	3-065-918-01	GEAR (2), CAM RELAY
821	A-7096-419-A	GEAR ASSY, CHANGE
822	3-065-902-01	BELT, TIMING
823	3-065-905-01	GEAR, RELAY
824	3-065-882-01	ARM, EJECT
M902	8-835-701-01	MOTOR, DC SCE13A/C-NP (CAPSTAN)
M903	A-7096-420-A	MOTOR ASSY, LD (LOADING)

6-1-11. MECHANICAL CHASSIS BLOCK ASSEMBLY-2



Ref. No.	Part No.	Description
851	3-065-920-01	ARM, HC DRIVE
852	3-065-913-01	GEAR (4), LD
853	3-065-914-01	SHEET, COVER
854	3-065-917-01	GEAR (1), CAM RELAY
855	3-065-934-01	HLW CUT 0.98X3X0.25
856	3-065-915-01	GEAR (1), CAM
857	3-065-878-01	PLATE (S), GUIDE LOCK
858	3-065-932-01	PAN (2 MAIN M1.4X1.6), CAMERA
859	A-7096-413-A	GEAR (S) ASSY, GUIDE
860	7-624-101-04	STOP RING 1.2 (E TYPE)
861	A-7096-412-A	GEAR (T) ASSY, GUIDE
862	X-3951-307-1	PLATE ASSY, M SLIDE
863	X-3951-305-1	ARM ASSY, LS
864	3-065-901-01	ROLLER, LS ARM
865	3-065-916-01	GEAR (2), CAM
866	3-065-919-01	ARM, T1 LIMITTER
867	X-3951-308-1	ARM ASSY, GL
868	X-3951-300-2	CHASSIS ASSY, MECHANICAL

6-2. ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- CAPACITORS:
  uF: µF
- COILS
  uH: µH
- RESISTORS
  All resistors are in ohms.
  METAL: metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F: nonflammable
- SEMICONDUCTORS
  In each case, u: µ, for example:
  uA...: µA... , uPA... , µPA... ,
  uPB... , µPB... , uPC... , µPC... ,
  uPD..., µPD...
- Abbreviation
  CND : Canadian model
  KR : Korea model
  JE : Tourist model
  AUS : Australian model
  HK : Hong Kong model

When indicating parts by reference number, please include the board name.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

CH : Chinese model
EE : East European model
NE : North European model
RU : Russian model
AR : Argentina model

Ref. No.	Part No.	Description			
	A-7078-109-A	CD-358 BOARD, COMPLETE			
		**********			
		(IC551 is not included in this complte board.)			
		< CAPACITOR >			
C551	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C553	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C554	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C556	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C557	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C559	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C561	1-113-992-11	TANTAL. CHIP	3.3uF	20%	35V
C562	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C563	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C564	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C565	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C567	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
		< CONNECTOR >			
CN551	1-779-336-11	CONNECTOR, FFC/FPC 24P			
		< FERRITE BEAD >			
FB551	1-414-445-11	FERRITE	0uH		
		< IC >			
IC551	A-7012-228-A	CCD BLOCK ASSY (CCD IMAGER)			
IC552	6-701-755-01	IC AD80017AJRURL			
		< COIL >			
L551	1-469-528-91	INDUCTOR	100uH		
L552	1-469-525-91	INDUCTOR	10uH		
		< TRANSISTOR >			
Q551	8-729-037-74	TRANSISTOR	UN9213J-(TX).SO		
		< RESISTOR >			
R552	1-218-990-11	SHORT	0		
R553	1-218-990-11	SHORT	0		

Be sure to read "Precautions upon replacing CCD imager" on page 4-7 when changing the CCD imager.

Ref. No.	Part No.	Description			
	A-7078-049-A	LB-076 BOARD, COMPLETE			
		**********			
		< CAPACITOR >			
C702	1-164-505-11	CERAMIC CHIP	2.2uF		16V
		< CONNECTOR >			
CN701	1-779-334-11	CONNECTOR, FFC/FPC 20P			
CN702	1-573-356-21	CONNECTOR, FFC/FPC 16P			
		< DIODE >			
D701	8-719-082-33	DIODE NSCW100-T38			
D702	8-719-074-30	DIODE SML-310LTT86			
		< IC >			
IC701	8-759-581-11	IC NJM2125F(TE2)			
		< TRANSISTOR >			
Q701	8-759-054-48	TRANSISTOR	UP04601008S0		
Q702	8-729-054-45	TRANSISTOR	UP04312008S0		
		< RESISTOR >			
R701	1-218-883-11	METAL CHIP	33K	0.5%	1/10W
R702	1-218-901-11	METAL CHIP	180K	0.5%	1/10W
R703	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R704	1-211-977-11	METAL CHIP	22	0.5%	1/10W
R706	1-216-839-11	METAL CHIP	33K	5%	1/16W
R707	1-218-867-11	RES-CHIP	6.8K	5%	1/10W
	A-7078-096-A	PD-156 (XC12)(SH) BOARD, COMPLETE (TRV738E/TRV740E:AEP,EE,NE,RU)			
		**********			
	A-7078-152-A	PD-156 (ZC12)(CA) BOARD, COMPLETE (TRV840)			
		**********			
		< CAPACITOR >			
C5501	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C5504	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C5505	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C5506	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C5507	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V

Ref. No.	Part No.	Description			
C5509	1-110-457-11	ELECT CHIP	3.3uF	20%	25V
C5510	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C5511	1-164-739-11	CERAMIC CHIP	560PF	5%	50V
C5512	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5513	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C5514	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C5515	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C5516	1-164-870-11	CERAMIC CHIP	68PF	5%	50V
		(TRV738E/TRV740E:AEP,EE,NE,RU)			
C5516	1-164-872-11	CERAMIC CHIP	82PF	5%	50V
		(TRV840)			
C5517	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C5518	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C5519	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C5520	1-115-407-11	ELECT CHIP	10uF	20%	16V
C5521	1-127-573-11	CERAMIC CHIP	1uF	10%	16V
C5524	1-127-573-11	CERAMIC CHIP	1uF	10%	16V
C5527	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C5528	1-135-177-21	TANTALUM CHIP	1uF	20%	20V
		(TRV738E/TRV740E:AEP,EE,NE,RU)			
C5530	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
		(TRV738E/TRV740E:AEP,EE,NE,RU)			
C5531	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
		(TRV738E/TRV740E:AEP,EE,NE,RU)			
C5603	1-164-657-11	CERAMIC CHIP	0.015uF	10%	50V
C5604	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5605	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
⚠C5606	1-131-959-91	CERAMIC CHIP	12PF	10%	3KV
C5607	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C5701	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
		< CONNECTOR >			
CN5501	1-815-031-11	CONNECTOR, FFC/FPC (ZIF) 24P			
* CN5502	1-573-984-11	CONNECTOR, BOARD TO BOARD 10P			
CN5601	1-764-709-11	CONNECTOR, FFC/FPC 10P			
CN5701	1-794-998-31	PIN, CONNECTOR 20P			
CN5702	1-816-176-11	CONNECTOR, FFC/FPC (ZIF) 6P			
CN5703	1-816-178-11	CONNECTOR, FFC/FPC (ZIF) 20P			
CN5704	1-778-508-21	PIN, CONNECTOR (PC BOARD) 6P			
CN5705	1-766-759-11	CONNECTOR, FFC/FPC 4P			
		< DIODE >			
D5502	8-719-084-47	DIODE 1SV290(TPL3)			
D5503	8-719-988-61	DIODE 1SS355TE-17			
		(TRV738E/TRV740E:AEP,EE,NE,RU)			
D5601	8-719-988-61	DIODE 1SS355TE-17			
		< FERRITE BEAD >			
FB5501	1-414-760-21	FERRITE	0uH		
FB5502	1-414-760-21	FERRITE	0uH		
FB5503	1-414-760-21	FERRITE	0uH		
		(TRV738E/TRV740E:AEP,EE,NE,RU)			
		< IC >			
IC5501	8-752-102-40	IC CXA3592R-T4			
		(TRV738E/TRV740E:AEP,EE,NE,RU)			
IC5501	8-759-660-92	IC RB5P003AM1 (TRV840)			
IC5502	8-759-714-77	IC LZ9FF474			
		(TRV738E/TRV740E:AEP,EE,NE,RU)			
IC5502	8-759-833-18	IC CM7021L3-E2 (TRV840)			
IC5601	8-759-564-49	IC TC7W53FU(TE12R)			
IC5602	8-759-075-70	IC TA75S393F-TE85R			
IC5701	8-759-573-02	IC BU9735K-E2			
		< COIL >			
L5501	1-469-527-91	INDUCTOR	47uH		
L5502	1-469-525-91	INDUCTOR	10uH (TRV840)		
L5503	1-412-949-21	INDUCTOR	6.8uH		
		(TRV738E/TRV740E:AEP,EE,NE,RU)			
L5503	1-412-950-11	INDUCTOR	8.2uH (TRV840)		
L5601	1-419-387-11	INDUCTOR	100uH		
L5602	1-412-056-11	INDUCTOR	4.7uH		
		< TRANSISTOR >			
Q5502	8-729-041-23	TRANSISTOR	MGSF1P02LT1		
		(TRV738E/TRV740E:AEP,EE,NE,RU)			
Q5503	8-759-054-48	TRANSISTOR	UP04601008S0		
		(TRV738E/TRV740E:AEP,EE,NE,RU)			
Q5504	8-759-054-48	TRANSISTOR	UP04601008S0		
		(TRV738E/TRV740E:AEP,EE,NE,RU)			
Q5505	8-729-052-64	TRANSISTOR	DTC144EHT2L		
		(TRV738E/TRV740E:AEP,EE,NE,RU)			
Q5601	8-729-052-64	TRANSISTOR	DTC144EHT2L		
Q5604	6-550-065-01	TRANSISTOR	CPH5504-TL-E		
		< RESISTOR >			
R5501	1-218-985-11	RES-CHIP	470K	5%	1/16W
R5503	1-208-933-11	METAL CHIP	82K	0.5%	1/16W
R5505	1-218-967-11	RES-CHIP	15K	5%	1/16W
R5506	1-218-958-11	RES-CHIP	2.7K	5%	1/16W
R5507	1-218-973-11	RES-CHIP	47K	5%	1/16W
R5508	1-218-975-11	RES-CHIP	68K	5%	1/16W
R5509	1-218-969-11	RES-CHIP	22K	5%	1/16W
R5510	1-218-975-11	RES-CHIP	68K	5%	1/16W
R5511	1-218-989-11	RES-CHIP	1M	5%	1/16W
R5512	1-218-977-11	RES-CHIP	100K	5%	1/16W
R5513	1-218-989-11	RES-CHIP	1M	5%	1/16W
		(TRV738E/TRV740E:AEP,EE,NE,RU)			
R5514	1-218-990-11	SHORT	0 (TRV840)		
R5515	1-218-990-11	SHORT	0		
		(TRV738E/TRV740E:AEP,EE,NE,RU)			
R5516	1-218-962-11	RES-CHIP	5.6K	5%	1/16W
		(TRV738E/TRV740E:AEP,EE,NE,RU)			
R5516	1-218-965-11	RES-CHIP	10K	5%	1/16W
		(TRV840)			
R5517	1-218-978-11	RES-CHIP	120K	5%	1/16W
		(TRV840)			
R5518	1-218-990-11	SHORT	0 (TRV840)		
R5519	1-218-990-11	SHORT	0		
		(TRV738E/TRV740E:AEP,EE,NE,RU)			
R5520	1-218-990-11	SHORT	0 (TRV840)		
R5521	1-218-973-11	RES-CHIP	47K	5%	1/16W
R5522	1-218-963-11	RES-CHIP	6.8K	5%	1/16W
		(TRV840)			
R5522	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
		(TRV738E/TRV740E:AEP,EE,NE,RU)			
R5523	1-218-990-11	SHORT	0		
R5525	1-218-990-11	SHORT	0 (TRV840)		
R5528	1-218-990-11	SHORT	0 (TRV840)		

Note : The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	**Note :** Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

PD-156 **PD-160**

Ref. No.	Part No.	Description			
R5529	1-218-990-11	SHORT	0 (TRV840)		
R5530	1-218-990-11	SHORT	0 (TRV840)		
R5531	1-218-980-11	RES-CHIP	180K	5%	1/16W
			(TRV738E/TRV740E:AEP,EE,NE,RU)		
R5532	1-218-977-11	RES-CHIP	100K	5%	1/16W
			(TRV738E/TRV740E:AEP,EE,NE,RU)		
R5533	1-218-989-11	RES-CHIP	1M	5%	1/16W
			(TRV738E/TRV740E:AEP,EE,NE,RU)		
R5534	1-218-990-11	SHORT	0		
R5540	1-218-977-11	RES-CHIP	100K	5%	1/16W
			(TRV738E/TRV740E:AEP,EE,NE,RU)		
R5541	1-218-977-11	RES-CHIP	100K	5%	1/16W
			(TRV738E/TRV740E:AEP,EE,NE,RU)		
R5601	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R5602	1-218-977-11	RES-CHIP	100K	5%	1/16W
R5603	1-218-966-11	RES-CHIP	12K	5%	1/16W
R5606	1-218-969-11	RES-CHIP	22K	5%	1/16W
R5607	1-218-949-11	RES-CHIP	470	5%	1/16W
R5612	1-218-965-11	RES-CHIP	10K	5%	1/16W
R5613	1-218-965-11	RES-CHIP	10K	5%	1/16W
			(TRV738E/TRV740E:AEP,EE,NE,RU)		
R5613	1-218-968-11	RES-CHIP	18K	5%	1/16W
					(TRV840)
R5704	1-218-987-11	RES-CHIP	680K	5%	1/16W
		< COMPOSITION CIRCUIT BLOCK >			
RB5501	1-234-372-21	RES, NETWORK 100X4	(1005)		
RB5502	1-234-384-11	RES, NETWORK 1MX4	(1005)		
			(TRV738E/TRV740E:AEP,EE,NE,RU)		
RB5503	1-234-378-21	RES, NETWORK 10KX4	(1005)		
			(TRV738E/TRV740E:AEP,EE,NE,RU)		
		< TRANSFORMER >			
⚠T5601	1-435-785-11	TRANSFORMER, INVERTER (TRV840)			
⚠T5601	1-435-227-11	TRANSFORMER, INVERTER			
			(TRV738E/TRV740E:AEP,EE,NE,RU)		
	A-7078-052-A	PD-160 (X6)(SO) BOARD, COMPLETE			
			(TRV740/TRV740E:E,HK,AUS,CH,JE)		
		**********			
	A-7078-145-A	PD-160 (ZS12)(SO) BOARD, COMPLETE			
					(TRV840)
		**********			
		< CAPACITOR >			
C5501	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C5504	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C5505	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C5506	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C5507	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C5509	1-110-457-11	ELECT CHIP	3.3uF	20%	25V
C5510	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C5511	1-164-739-11	CERAMIC CHIP	560PF	5%	50V
C5512	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5515	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V

Ref. No.	Part No.	Description			
C5516	1-164-872-11	CERAMIC CHIP	82PF	5%	50V
			(TRV740/TRV740E:E,HK,AUS,CH,JE)		
C5516	1-164-874-11	CERAMIC CHIP	100PF	5%	50V
					(TRV840)
C5517	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C5518	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C5519	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C5532	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C5533	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C5534	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C5536	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5538	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C5540	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C5602	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C5604	1-164-657-11	CERAMIC CHIP	0.015uF	10%	50V
C5605	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5606	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
⚠C5607	1-131-959-91	CERAMIC CHIP	12PF	10%	3KV
C5701	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
		< CONNECTOR >			
CN5501	1-815-031-11	CONNECTOR, FFC/FPC (ZIF) 24P			
* CN5502	1-573-984-11	CONNECTOR, BOARD TO BOARD 10P			
CN5601	1-764-709-11	CONNECTOR, FFC/FPC 10P			
CN5701	1-794-998-31	PIN, CONNECTOR 20P			
CN5702	1-816-176-11	CONNECTOR, FFC/FPC (ZIF) 6P			
CN5703	1-816-178-11	CONNECTOR, FFC/FPC (ZIF) 20P			
CN5704	1-778-508-21	PIN, CONNECTOR (PC BOARD) 6P			
CN5705	1-766-759-11	CONNECTOR, FFC/FPC 4P			
		< DIODE >			
D5502	8-719-084-47	DIODE 1SV290(TPL3)			
D5503	8-719-050-42	DIODE RD3.3UM-T1B			
D5601	8-719-988-61	DIODE 1SS355TE-17			
		< FERRITE BEAD >			
FB5502	1-414-760-21	FERRITE	0uH		
FB5504	1-414-760-21	FERRITE	0uH		
		< IC >			
IC5501	8-752-100-95	IC CXA3289AR-T4			
IC5502	8-752-407-33	IC CXD3512R-T4			
			(TRV740/TRV740E:E,HK,AUS,CH,JE)		
IC5502	8-752-409-15	IC CXD3516R-T4 (TRV840)			
IC5601	8-759-564-49	IC TC7W53FU(TE12R)			
IC5602	8-759-075-70	IC TA75S393F-TE85R			
IC5701	8-759-573-02	IC BU9735K-E2			
		< COIL >			
L5501	1-469-527-91	INDUCTOR	47uH		
L5505	1-412-949-21	INDUCTOR	6.8uH (TRV840)		
L5505	1-412-956-21	INDUCTOR	27uH		
			(TRV740/TRV740E:E,HK,AUS,CH,JE)		
L5601	1-419-387-21	INDUCTOR	100uH		
L5602	1-412-056-11	INDUCTOR	4.7uH		

Note :
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Note :
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description			
		< TRANSISTOR >			
Q5503	8-759-054-48	TRANSISTOR	UP04601008S0		
Q5504	8-729-052-65	TRANSISTOR	2SA1774HT2L		
Q5505	8-729-041-23	TRANSISTOR	NDS356AP		
Q5506	8-729-052-64	TRANSISTOR	DTC144EHT2L		
Q5508	8-759-054-48	TRANSISTOR	UP04601008S0		
Q5601	8-729-052-64	TRANSISTOR	DTC144EHT2L		
Q5602	6-550-083-01	TRANSISTOR	TPC6C01(TE85R) (TRV740/TRV740E:E,HK,AUS,CH,JE)		
Q5604	6-550-065-01	TRANSISTOR	CPH5504-TL-E		
		< RESISTOR >			
R5501	1-218-985-11	RES-CHIP	470K	5%	1/16W
R5503	1-208-933-11	METAL CHIP	82K	0.5%	1/16W (TRV840)
R5503	1-208-935-11	METAL CHIP	100K	0.5%	1/16W (TRV740/TRV740E:E,HK,AUS,CH,JE)
R5506	1-218-958-11	RES-CHIP	2.7K	5%	1/16W
R5507	1-218-973-11	RES-CHIP	47K	5%	1/16W
R5508	1-218-975-11	RES-CHIP	68K	5%	1/16W
R5509	1-218-969-11	RES-CHIP	22K	5%	1/16W
R5510	1-218-975-11	RES-CHIP	68K	5%	1/16W
R5511	1-218-989-11	RES-CHIP	1M	5%	1/16W
R5512	1-218-977-11	RES-CHIP	100K	5%	1/16W
R5522	1-218-969-11	RES-CHIP	22K	5%	1/16W (TRV740/TRV740E:E,HK,AUS,CH,JE)
R5522	1-218-973-11	RES-CHIP	47K	5%	1/16W (TRV840)
R5551	1-218-973-11	RES-CHIP	47K	5%	1/16W
R5572	1-218-965-11	RES-CHIP	10K	5%	1/16W
R5573	1-218-965-11	RES-CHIP	10K	5%	1/16W
R5574	1-208-957-11	RES-CHIP	820K	5%	1/16W
R5575	1-218-975-11	RES-CHIP	68K	5%	1/16W
R5576	1-218-989-11	RES-CHIP	1M	5%	1/16W
R5577	1-218-985-11	RES-CHIP	470K	5%	1/16W
R5579	1-218-979-11	RES-CHIP	150K	5%	1/16W
R5590	1-218-990-11	SHORT	0		
R5609	1-218-965-11	RES-CHIP	10K	5%	1/16W
R5610	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R5611	1-218-980-11	RES-CHIP	180K	5%	1/16W
R5612	1-218-969-11	RES-CHIP	22K	5%	1/16W
R5614	1-218-965-11	RES-CHIP	10K	5%	1/16W (TRV740/TRV740E:E,HK,AUS,CH,JE)
R5614	1-218-968-11	RES-CHIP	18K	5%	1/16W (TRV840)
R5617	1-218-969-11	RES-CHIP	22K	5%	1/16W
R5618	1-218-949-11	RES-CHIP	470	5%	1/16W
R5704	1-218-987-11	RES-CHIP	680K	5%	1/16W
		< COMPOSITION CIRCUIT BLOCK >			
RB5501	1-234-372-21	RES, NETWORK 100X4	(1005)		
		< TRANSFORMER >			
⚠T5601	1-435-227-11	TRANSFORMER, INVERTER (TRV740/TRV740E:E,HK,AUS,CH,JE)			
⚠T5601	1-435-785-11	TRANSFORMER, INVERTER (TRV840)			

Ref. No.	Part No.	Description			
	A-7078-047-A	SI-032 BOARD, COMPLETE **********			
		< CAPACITOR >			
C305	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C310	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C311	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C312	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C314	1-162-969-11	CERAMIC CHIP	0.0068uF	10%	25V
C315	1-162-969-11	CERAMIC CHIP	0.0068uF	10%	25V
		< CONNECTOR >			
CN301	1-764-526-11	CONNECTOR, FFC/FPC 18P			
CN302	1-816-232-11	PIN, CONNECTOR (PC BOARD) 4P			
CN304	1-779-339-21	CONNECTOR, FFC/FPC 30P			
		< DIODE >			
D301	8-719-067-44	DIODE CL-310IRS-X-TU			
D302	8-719-067-44	DIODE CL-310IRS-X-TU			
D303	8-719-062-16	DIODE 01ZA8.2(TPL3)			
D304	8-719-056-85	DIODE UDZSTE-178.2B			
D306	8-719-074-30	DIODE SML-310LTT86			
D309	8-719-062-16	DIODE 01ZA8.2(TPL3)			
D313	8-719-062-16	DIODE 01ZA8.2(TPL3)			
		< FERRITE BEAD >			
FB301	1-414-760-21	FERRITE	0uH		
FB302	1-414-760-21	FERRITE	0uH		
		< IC >			
IC301	6-701-681-01	IC NJL61H400A			
		< TRANSISTOR >			
Q301	8-729-141-73	TRANSISTOR	2SD1938(F)-S(TX).SO		
		< RESISTOR >			
R301	1-216-810-11	METAL CHIP	120	5%	1/16W
R307	1-216-864-11	METAL CHIP	0	5%	1/16W
R316	1-216-817-11	METAL CHIP	470	5%	1/16W
R319	1-216-019-00	METAL CHIP	56	5%	1/10W
R320	1-216-019-00	METAL CHIP	56	5%	1/10W
		< SENSOR >			
SE301	1-803-042-31	SENSOR, ANGULAR VELOCITY (PITCH) (SERVICE)			
SE302	1-803-042-41	SENSOR, ANGULAR VELOCITY (YAW) (SERVICE)			
		< VARISTOR >			
VDR301	1-801-923-11	VARISTOR, CHIP			
VDR302	1-801-923-11	VARISTOR, CHIP			
VDR303	1-801-923-11	VARISTOR, CHIP			

Note :
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Note :
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

VC-278

Ref. No.	Part No.	Description
	A-7012-212-A	VC-278 (GNA) BOARD, COMPLETE (SERVICE) (TRV740/TRV840)
		**********
	A-7012-362-A	VC-278 (GPAO) BOARD, COMPLETE (SERVICE) (TRV738E)
		**********
	A-7012-363-A	VC-278 (GPA) BOARD, COMPLETE (SERVICE) (TRV740E)
		**********

[redacted]

Ref. No.	Part No.	Description

Electrical parts list of the VC-278 board are not shown.
Pages from 6-17 to 6-25 are not shown.

Ref. No.	Part No.	Description

ACCESSORIES
****

	1-475-141-61	REMOTE COMMANDER (RMT-814)
⚠	1-475-599-11	ADAPTOR, AC (AC-L10) (TRV738E/TRV740:US,CND,E,JE/ TRV740E:AEP,EE,NE,RU,E,HK,AUS,JE/TRV840)
⚠	1-475-599-71	ADAPTOR, AC (AC-L10) (TRV740:KR)
⚠	1-475-599-81	ADAPTOR, AC (AC-L10) (TRV740E:CH)
⚠	1-569-007-11	ADAPTOR, CONVERSION 2P (TRV740:JE/TRV740E:JE)
⚠	1-569-008-21	ADAPTOR, CONVERSION 2P (TRV740:E/TRV740E:E,HK/TRV840:E)
	1-573-291-11	CONNECTOR, CONVERSION 21P (TRV738E/TRV740E:AEP,EE,NE,RU)
⚠	1-696-819-11	CORD, POWER (TRV740E:AUS)
	1-757-293-21	CORD, CONNECTION (USB 5P)
	1-765-080-11	CORD, CONNECTION (AV CABLE) (1.5m)

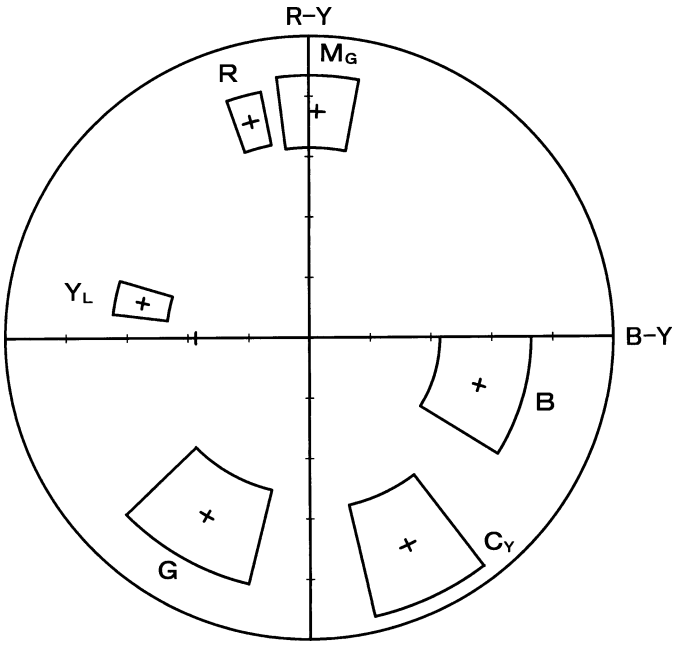
Note :	**Note :**
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description
⚠	1-769-608-11	CORD, POWER (TRV738E/TRV740:E/TRV740E:AEP,EE,NE,RU,E/TRV840:E,AR)
⚠	1-776-985-11	CORD, POWER (TRV740:KR)
⚠	1-782-476-11	CORD, POWER (TRV740E:CH)
⚠	1-783-374-11	CORD, POWER (TRV740E:HK)
⚠	1-790-107-22	CORD, POWER (TRV740:US,CND/TRV840:US,CND)
⚠	1-790-732-11	CORD, POWER (TRV740:JE/TRV740E:JE)
	3-072-414-01	SPVD-008 (CD-ROM USB DRIVER) (TRV738E/TRV740:E,JE,KR/TRV740E/TRV840:E,AR)
	3-072-650-11	MANUAL, INSTRUCTION (ENGLISH) (TRV740:US,CND,E,JE/TRV840)
	3-072-650-21	MANUAL, INSTRUCTION (FRENCH) (TRV740:CND/TRV840:CND)
	3-072-650-31	MANUAL, INSTRUCTION (SPANISH/PORTUGUESE) (TRV740:E,JE/TRV840:E,AR)
	3-072-650-41	MANUAL, INSTRUCTION (TRADITIONAL CHINESE) (TRV740:E)
	3-072-650-51	MANUAL, INSTRUCTION (SIMPLIFIED CHINESE) (TRV740:E)
	3-072-650-61	MANUAL, INSTRUCTION (KOREAN) (TRV740:JE,KR)
	3-072-651-11	MANUAL, INSTRUCTION (ENGLISH/RUSSIAN) (TRV740E:RU,E,HK,AUS,CH,JE)
	3-072-651-21	MANUAL, INSTRUCTION (FRENCH/GERMAN) (TRV740E:AEP,E,JE)
	3-072-651-31	MANUAL, INSTRUCTION (ARABIC/PERSIAN) (TRV740E:E)
	3-072-651-41	MANUAL, INSTRUCTION (TRADITIONAL CHINESE) (TRV740E:HK)
	3-072-651-51	MANUAL, INSTRUCTION (SIMPLIFIED CHINESE) (TRV740E:E,CH,JE)
	3-072-651-61	MANUAL, INSTRUCTION (ENGLISH DUTCH) (TRV740E:AEP)
	3-072-651-71	MANUAL, INSTRUCTION (SPANISH/PORTUGUESE) (TRV740E:AEP)
	3-072-651-81	MANUAL, INSTRUCTION (ITALIAN/GREEK) (TRV740E:AEP)
	3-072-651-91	MANUAL, INSTRUCTION (ENGLISH/SWEDISH) (TRV740E:NE)
	3-072-652-11	MANUAL, INSTRUCTION (DANISH/FINNISH) (TRV740E:NE)
	3-072-652-21	MANUAL, INSTRUCTION (POLISH/CZECH) (TRV740E:EE)
	3-072-652-31	MANUAL, INSTRUCTION (HUNGARIAN/SLOVAKIAN) (TRV740E:EE)
	3-072-653-21	MANUAL, INSTRUCTION (FRENCH/GERMAN) (TRV738E:AEP)
	3-072-653-31	MANUAL, INSTRUCTION (ENGLISH DUTCH) (TRV738E:AEP)
	3-072-653-41	MANUAL, INSTRUCTION (SPANISH/PORTUGUESE) (TRV738E:AEP)
	3-072-653-51	MANUAL, INSTRUCTION (ITALIAN/GREEK) (TRV738E:AEP)
	3-072-654-01	SPVD-008 (I) (TRV740:US,CND/TRV840:US,CND)
	3-742-854-01	LID, BATTERY CASE (FOR RMT-814)
	3-987-015-01	BELT (S), SHOULDER
	X-3949-376-1	CAP (N) ASSY, LENS
		NP-FM50 BATTERY PACK (NOT SUPPLIED)

Note :	**Note :**
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

〈FOR CAMERA COLOR REPRODUCTION ADJUSTMENT〉

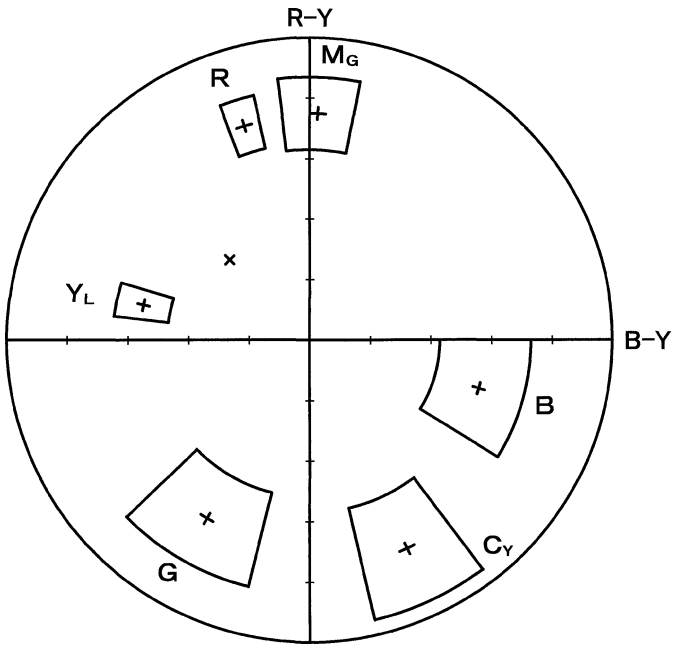
For NTSC model



DCR-TRV740/TRV840

Take a copy of CAMERA COLOR REPRODUCTION FRAME with a clear sheet for use.

For PAL model



DCR-TRV738E/TRV740E

2002C1600-1
©2002.3
Published by DI Customer Center

Revision History

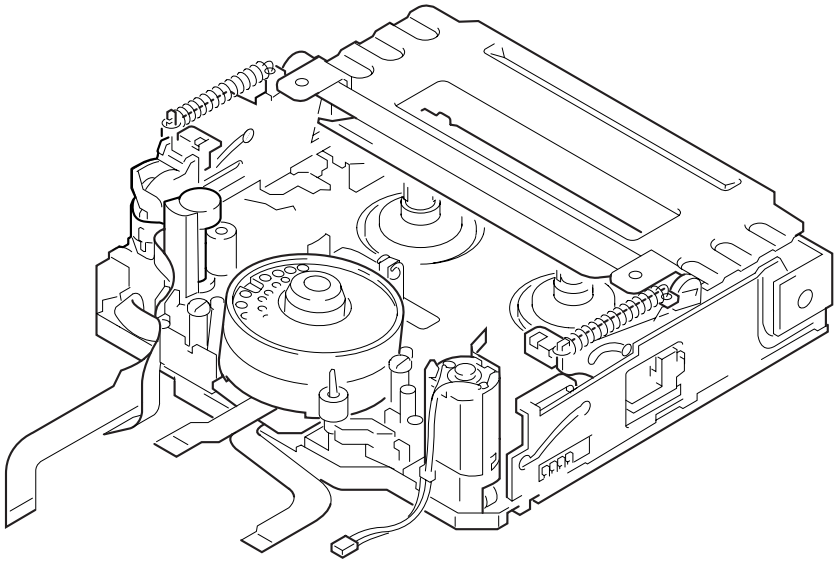
Ver.	Date	History	Contents	S.M. Rev. issued
1.0	2002.03	Official Release	—	—

8mm Video MECHANICAL ADJUSTMENT MANUAL IX

Ver 1.0 2000. 12

M2000 MECHANISM

Please use this manual with the service manual of the respective models.



Digital 8 MECHANISM DECK

SONY

TABLE OF CONTENTS

1. Preparations for Check, Adjustment and Replacement of Mechanism Block

1-1. Service Jigs and Tools ····· 3
1-2. Mode Selector II Operating Procedure ····· 5

2. Periodic Inspection and Maintenance

2-1. Rotary Drum Cleaning ····· 9
2-2. Tape Path System Cleaning ····· 9
2-3. Periodic Inspection List ····· 10
2-4. Appling Oil and Grease ····· 10

3. Before Replacement, Check or Adjustment

3-1. Phase Adjustment ····· 11
3-2. Cassette compartment assembly ····· 12

4. Check, Adjustment and Replacement

4-1. Drum Assembly ····· 14
4-2. HCL Arm Assembly, Loading Motor Assembly ····· 15
4-3. Drum Base Assembly, Drum Earth ····· 16
4-4. Guide Rail T2, Capstan Motor ····· 17
4-5. Blind Plate, Lock Guide ····· 18
4-6. Reel Table (T) Assembly, T Soft Assembly ····· 19
4-7. S Ratchet RE Plate, Cassette Guide S ····· 20
4-8. R Drive Gear Assembly, LS Cam Plate ····· 21
4-9. LS Cam Plate Position Adjustment ····· 22
4-10. LS Chassis Block Assembly ····· 23
4-11. TG7 Arm Block Assembly, Pinch Arm Assembly ····· 24
4-12. Guide Base (T) Block Assembly, Guide Base (S) Block Assembly ····· 25
4-13. TG1 Arm, Reel Table (S) Assembly, Push Switch (3Key) · 26
4-14. Hall Element (H001, H002 (T/S Reel)), Photo Transistor (Q001, Q002 (Tape Top/Tape End)), LED (D001 (Tape LED)) ····· 27
4-15. LS Guide Roller, Guide Lock Plate (T), Pinch Pusher Assembly, Eject Arm ····· 28
4-16. Rotary Switch, Cam Relay Gear, Change Gear Assembly, Timing Belt ····· 29
4-17. Guide Gear Assembly, Guide Gear T Assembly, Cam Relay Gear 1, Guide Lock Plate (S) ····· 30
4-18. LD Gear 4, Cam Gear 1, HC Drive Arm ····· 31
4-19. M Slide Plate Assembly, LS Arm Assembly, Cam Gear 2, GL Arm Assembly ····· 32

5. Adjustment

5-1. Check and Adjustment of TG1 Back-tension Position ····· 33
5-2. Check and Adjustment of FWD/RVS Back-tension ····· 34
5-3. Capstan Motor Azimuth Position Adjustment ····· 35
5-4. Tape Path Adjustment ····· 36

6. Exploded Views

6-1. Cassette Compartment Assy, Drum Assy ····· 40
6-2. LS Chassis Block Assembly ····· 41
6-3. Mechanical Chassis Block Assembly-1 ····· 42
6-4. Mechanical Chassis Block Assembly-2 ····· 43

7. Printed Wiring Boards and Schematic Diagrams 44

1. Preparations for Check, Adjustment and Replacement of Mechanism Block

Before Replacement, Check or Adjustment

- Refer to the "DISASSEMBLY" section of the SERVICE MANUAL of the respective models for details of removing cabinets and printed wiring boards.
- When checking a mechanism ir making any adjustment to the mechanism or replacing mechanical parts, be sure to use the Mode Selector II and select the appropriate status of the mechanical deck such that the mechanical status is suitable for the desired work. Refer to section "1-2. Mode Selector II Operating Procedure" for details on how to enter the mode shown in a rectangle ____ mode in the sequent sections of this manual.

* Assemble and adjust the parts in the USE mode if any mode is not specified in this manual.

1-1. Service Jigs and Tools

Ref. No.	Name		Part code	Jig inscription	Used for
J-1	Cleaning fluid		Y-2031-001-0		
J-2	Wiping cloth		7-741-900-53		
J-3	Super-fine applicator (made by Nippon Applicator (P752D))				
J-4	Head eraser		commercially available		Tape path
J-5	Mirror (small oval type)		J-6080-840-A	GD-2038	Tape path
J-6	Alignment tape	NTSC : WR5-1NP	8-967-995-02		For tracking adjustment
		PAL : WR5-1CP	8-967-995-07		
J-7	FWD/RVS take-up torque cassette		J-6080-824-A	GD-2086	
J-8	Tape path screwdriver		J-6082-026-A		For tape guide adjustment
J-9	Adjustment remote commander (RM-95 upgrated)		J-6082-053-B		Tape path (for setting the path mode)(Note)
J-10	MD process table		J-6082-166-A		
J-11	Floil grease		7-662-001-39		
J-12	Torque screwdriver		J-9049-330-A		
J-13	Mode Selector II		J-6082-282-B		
J-14	Mode Selector II conversion board		J-6082-516-A		
J-15	Mode Selector II ROM, Ver 1.6		J-6082-314-E		
J-16	Thickness gauge		9-911-053-00		For capstan azimuth adjustment, LS cam plate position adjustment

Other required equipment:

- Oscilloscope
- Analog tester (20 kΩ)

Note: If the micro processor IC in the adjustment remote commander is not the new micro processor (UPD7503G-C56-12), the pages cannot be switched. In this case, replace with the new micro processor (8-759-148-35).

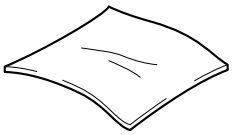
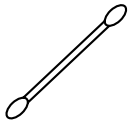
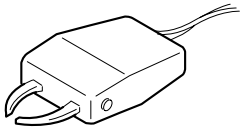
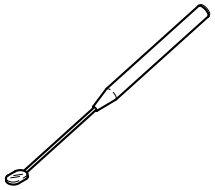
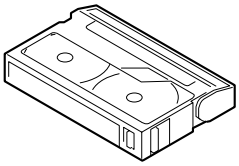
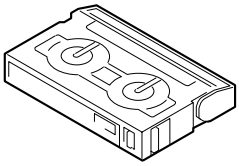
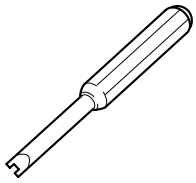
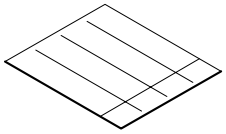
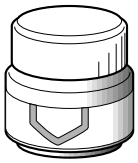
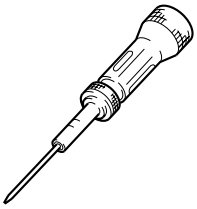
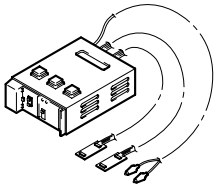
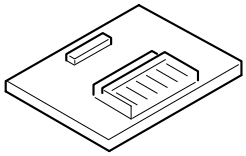
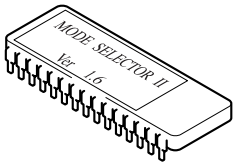
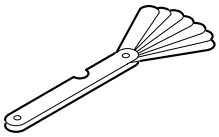
J-1	***J-2*** 	***J-3*** 	***J-4*** 	***J-5*** 
J-6 	***J-7*** 	***J-8*** 	***J-9***	***J-10*** 
J-11 	***J-12*** 	***J-13*** 	***J-14*** 	***J-15*** 
J-16 				

Fig. 1-1.

1-2. Mode Selector II Operating Procedure

1-2-1. Introduction

The Mode Selector II is a mechanism drive tool that assists maintenance work of the various mechanism decks. It has the following functions.

1. Manual Test

In this mode, the motor of the mechanism deck is powered only during the period while the switch is turned on manually. Using the Manual Test, the operator can freely control the motor of the mechanism deck.

2. Step Test

In this mode, the motor of the mechanism deck is kept turned on until the mechanical status is changed from the present mechanical status that is obtained from the sensor information. The Step Test is used to confirm a series of movements of the mechanism deck.

3. Auto Test

The Mode Selector II stores the status transition table in its memory as data indicating the respective modes of the mechanism deck. The status transition table can be used to confirm whether a mechanism deck is operating normally or has abnormality from a series of movements of a mechanism deck. If an abnormal status transition is detected during operation, the "NG" indication appears and the mechanism stops moving.

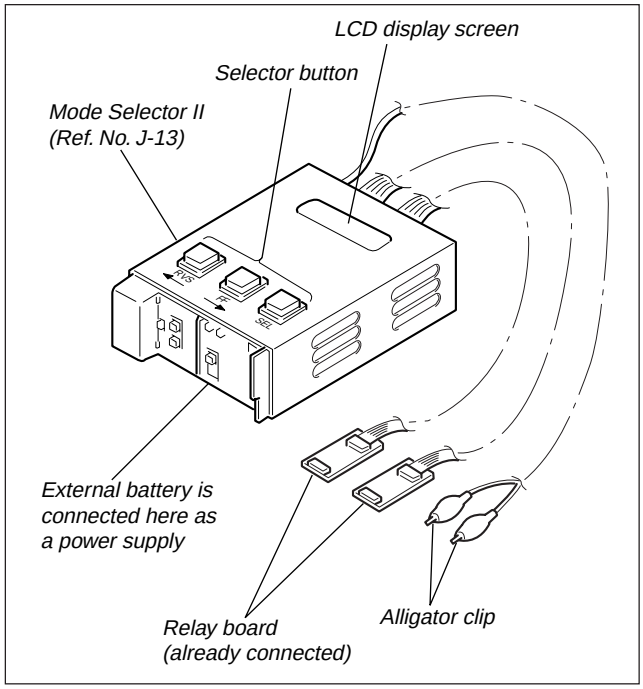


Fig. 1-2.

Mode Selector II (J-6082-282-B) connection diagram

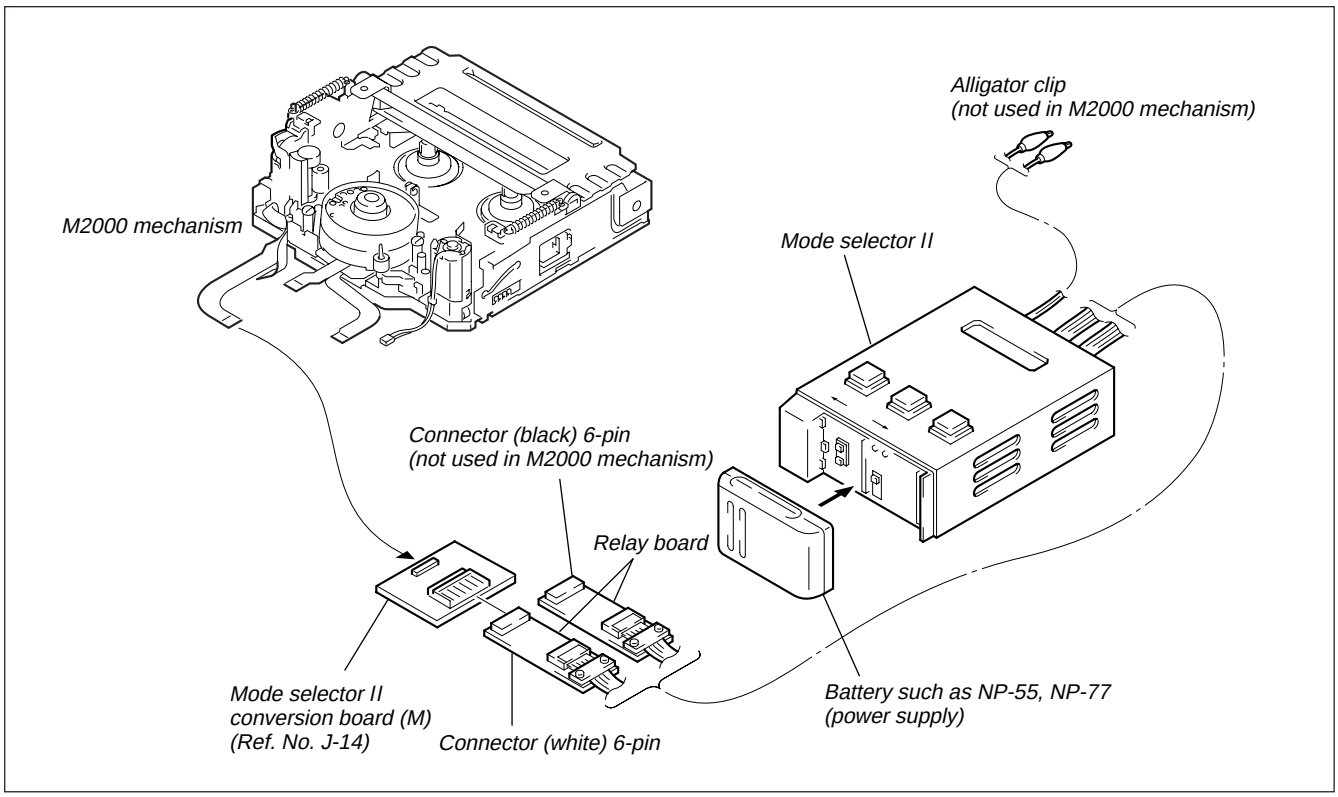
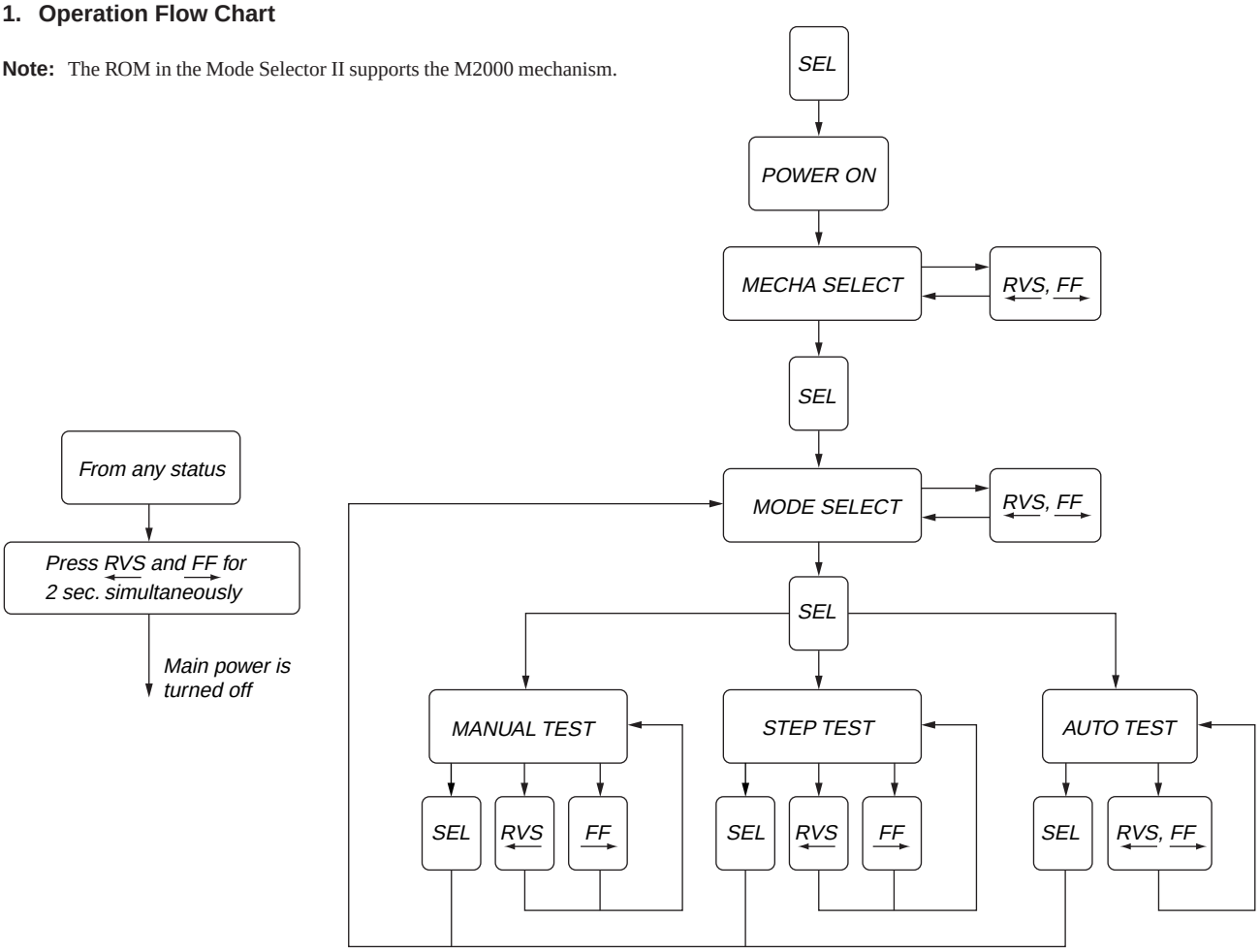


Fig. 1-3.

1-2-2. Operation

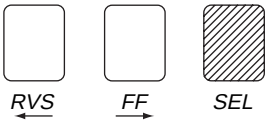
1. Operation Flow Chart

Note: The ROM in the Mode Selector II supports the M2000 mechanism.



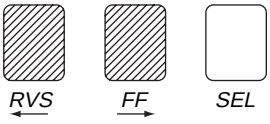
2. Mode Selector II Power On

Turn on the main power of the Mode Selector II as follows.
Press the SEL button.



3. Mode Selector II Power Off

Turn off the main power of the Mode Selector II as follows.
Press the RVS and FF buttons at the same time for 2 seconds or longer while the power is on.



4. Mecha Select

When the main power is turned on, the MECHA SELECT display appears on the LCD screen. Select the desired mechanism name using the RVS and FF buttons. Selection is complete when the SEL button is pressed. (Fig. A shows the B mechanism.)

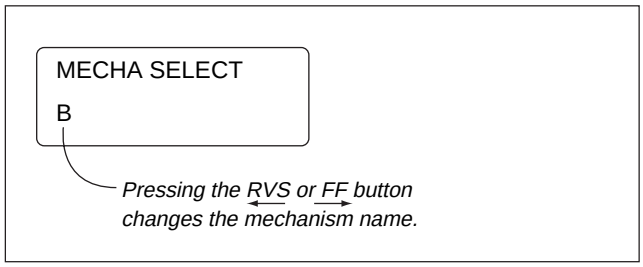


Fig. a

5. Test Type Select

Using the RVS and FF buttons, select a desired test type from the three types of "MANUAL", "STEP" and "AUTO". Selection is complete when the SEL button is pressed.

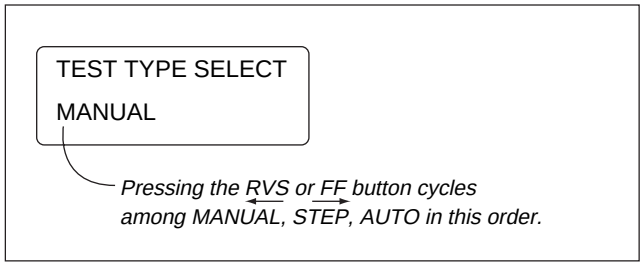


Fig. b

6. Manual Test

In this test, the motor of the mechanism deck is turned on only during the period while the RVS or FF button is pressed manually.

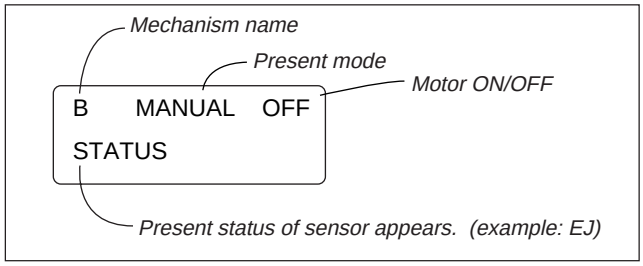


Fig. c

7. Step Test

In this test, the direction of motor movement is determined by the RVS and FF buttons. The motor of the mechanism deck is kept turned on until the mechanical status is changed from the present mechanical status that is obtained from the sensor information.

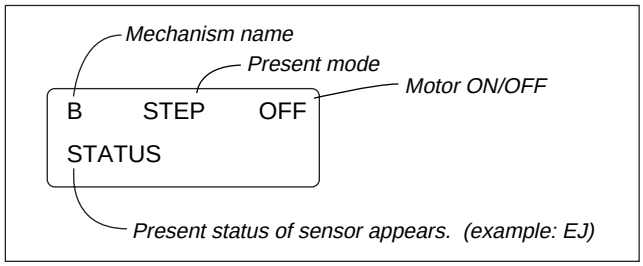


Fig. d

8. Auto Test

In this test, the mechanism deck is tested as to whether it performs a series of movements correctly in accordance with the operation sequence that is memorized earlier for each type of deck, by checking the output signals from sensors with the stored memory. Turning on the RVS or FF button performs the same operation.

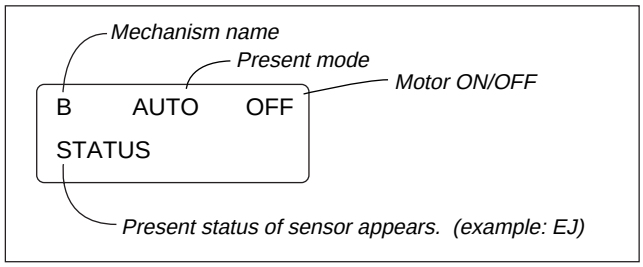


Fig. e

1-2-3. Mechanism Status (Position) Transition Table Using Mode Selector II

After selecting a mechanism deck, select either the MANUAL or STEP test (not AUTO) using the Mode Selector II. The desired mechanism status (position) can be specified by pressing the RVS or FF button. (The selected status appears on STATUS.)
EJ⟷USE⟷LOAD⟷STOP⟷TURN⟷RP⟷REW

Code (MD name)				M2000 Mechanism
A	B	C		
1	0	0	1	EJ
1	1	0	2	USE
0	1	0	3	LOAD
0	1	1	4	STOP
0	0	1	5	TURN
0	0	0	6	RP
1	0	1	7	REW

[0 is common and short.
1 is common and open.]

1-2-4. Battery Alarm Indication

When the level of the battery used to supply power to this system decreases, this display appears asynchronously. When this happens, all operations are disabled and the battery must be replaced.

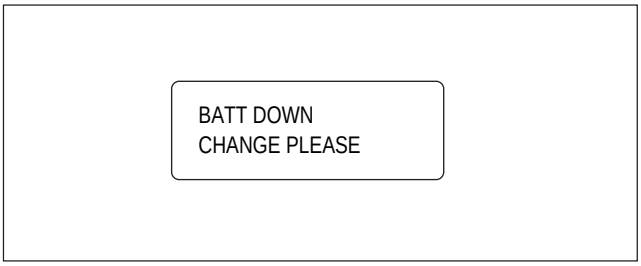


Fig. f

2. Periodic Inspection and Maintenance

- Be sure to perform the following maintenance and inspection so that the machine delivers its full performance and functions, and to protect the machine and tape. Also, perform the following maintenance items after completing the repair work, regardless of the number of hours the machine has been operated by the user.

2-1. Rotary Drum Cleaning

1) Press a wiping cloth (Ref. No. J-2) moistened with cleaning fluid (Ref. No. J-1) lightly against the rotary drum. Rotate the upper drum with a super-fine applicator slowly in the counter-clockwise direction to clean the rotary drum.

Caution: Never rotate the rotary drum by turning on the main power of the motor or rotate it in the clockwise direction. Never move the cloth vertically against the head tip, as this will surely damage the video head; the video head must not be cleaned by any other different methods.

2-2. Tape Path System Cleaning
(Refer to Fig. 2-1.)

1) Set the EJECT state. Clean the tape running path (TG1, 2, 3, 4, 5, 6 and 7, pinch roller and capstan shaft) and lower drum with a super-fine applicator (Ref. No. J-3) moistened with cleaning fluid.

Note 1: Be careful not to allow oil or grease of the various link mechanisms to get on the super-fine applicator (Ref. No. J-3).
Note 2: Once the super-fine applicator has been moistened with alcohol, do not use it to clean other mechanical parts such as the tape guide. However, the pinch roller is cleaned with alcohol.
Note 3: When cleaning the capstan shaft, be carefull not to move the oil seal. If the oil seal is moved, oil will leak.

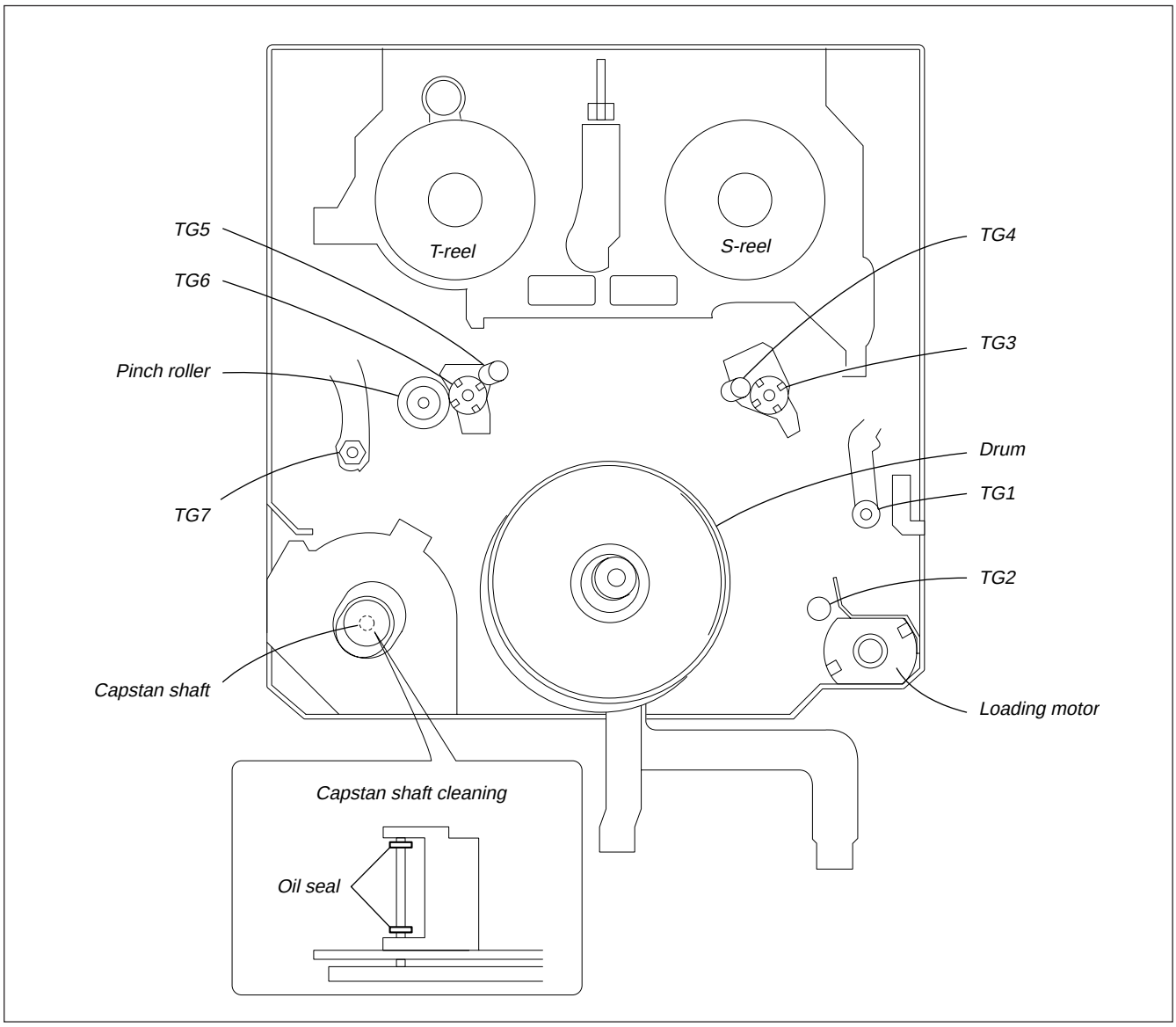


Fig. 2-1

2-3. Periodic Inspection List

Maintenance and inspection item		Operating hours (H)										Remarks
		500	1000	1500	2000	2500	3000	3500	4000	4500	5000	
	Tape running surface cleaning	○	○	○	○	○	○	○	○	○	○	Be careful not to attach oil
	Rotary drum cleaning and degaussing	○	○	○	○	○	○	○	○	○	○	Be careful not to attach oil
Drive mechanism	Timing belt	—	☆	—	☆	—	☆	—	☆	—	☆	
Drive mechanism	Capstan shaft	—	☆	—	☆	—	☆	—	☆	—	☆	Never attach oil to the tape running path during periodic inspection.
Drive mechanism	Loading motor	—	☆	—	☆	—	☆	—	☆	—	☆	
Performance check	Abnormal sound	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	
Performance check	Back-tension measurement	—	☆	—	☆	—	☆	—	☆	—	☆	
Performance check	Brake system	—	☆	—	☆	—	☆	—	☆	—	☆	
Performance check	FWD/RVS torque measurement	—	☆	—	☆	—	☆	—	☆	—	☆	

○: Cleaning, ☆: Check

Note: When the machine is overhauled, replace the parts referring to the above list.

2-4. Appling Oil and Grease

When replacing or assembling the parts, use oil and grease while referring to the following.

On Oil

- Be sure to use the specified grease only. (If oil of different viscosity is used, it can cause various troubles.)
  Oil: Part No. 7-661-018-18
  (Mitsubishi diamond oil hydro fluid NT-68)
- The oil used for bearings must not contain any dust or other materials, otherwise excessive abrasion and seizure of the bearing could occur.
- A drop of oil means the amount of oil as shown in the illustration in the right, which is the amount that is attracted to the top of a rod of 2 mm diameter.

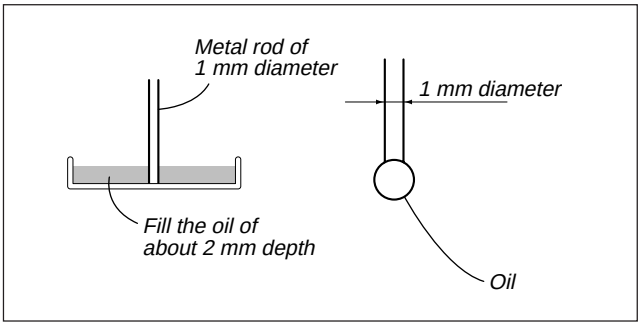


Fig. 2-2

On Grease

- Be sure to use the specified grease only. (If oil of different viscosity is used, it can cause various troubles.)
  Floil grease: Part No. 7-662-001-39
- Be sure to use grease into which dust is not mixed.
- The amount of grease is 1 to 1.5 mm diameter in length.

3. Before Replacement, Check or Adjustment

3-1. Phase Adjustment

The phase adjustment of this mechanism block has been adjusted by using the in-phase markings shown in the following figure. When replacing or assembling the parts, check the phase.

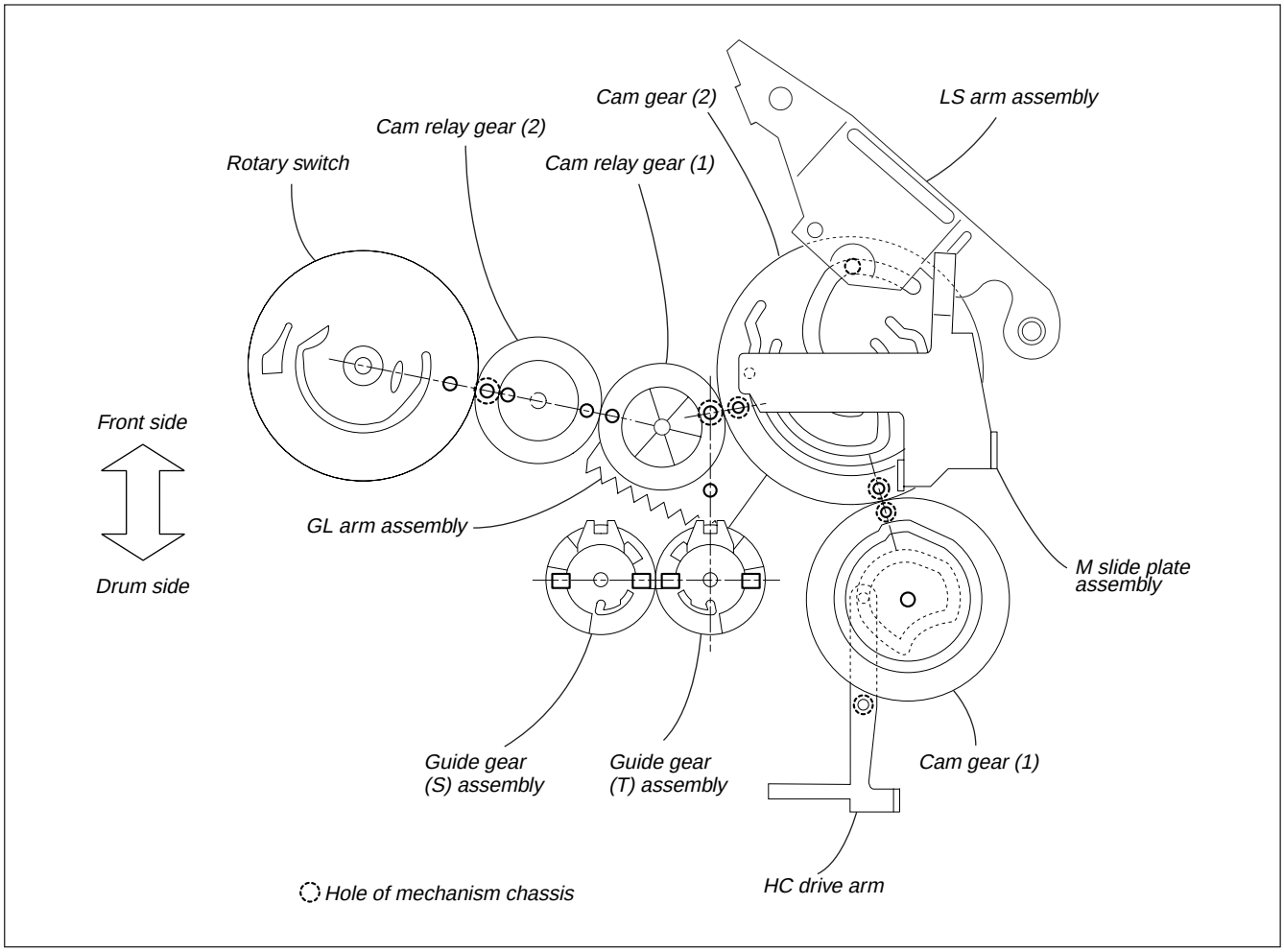


Fig. 3-1.

3-2. Cassette compartment assembly

1. Removal procedure

1) Set the [EJ] mode to move up the cassette compartment assembly ⑩.
2) Remove the capstan flexible board and flexible wiring board (FP-300) ① from the holders Ⓧ, Ⓨ and Ⓩ in the directions of the arrows Ⓐ, Ⓑ and Ⓒ.
3) Push the damper assembly ③ in the directions of the arrows Ⓓ and Ⓔ and remove it from the notch of the LS chassis block assembly.
4) Remove the two screws (camera pan2 main M1.4 × 1.6) ④.
5) With the cassette compartment assembly ⑩ half opened, move the face plate in the direction of the arrow Ⓕ and remove it from the grooves ⑥ and ⑦ on the LS chassis block assembly.
6) Remove the cassette holder (S) ⑧ and cassette holder (T) ⑨ of the cassette compartment assembly ⑩ from the groove on the LS chassis block assembly.

2. Attachment procedure

1) Set the [USE] mode.
2) Insert the cassette holder (S) ⑧ of the cassette compartment assembly ⑩ and cassette holder (T) ⑨ into the grooves on both sides of the LS chassis block assembly.
3) While moving down the cassette compartment assembly ⑩, lift up the face plate in the direction of the arrow Ⓕ and keep this status. Then, insert the face plate in the grooves ⑥ and ⑦ on the LS chassis block assembly.
4) Tighten the two screws (camera pan2 main M1.4×1.6) ④.
   Tightening torque: 0.078 ± 0.01 N•m (0.8 ± 0.1 kgf•cm)
5) Move the damper arm of the damper assembly ③ to the 4 o'clock position and insert the damper assembly into the hole on the LS chassis block assembly and the dowel of the cassette holder (T) ⑨.
6) Align the damper assembly ③ with the notch of the LS chassis block assembly and rotate the damper assembly ③ in the opposite direction to the arrow Ⓔ to fix it.

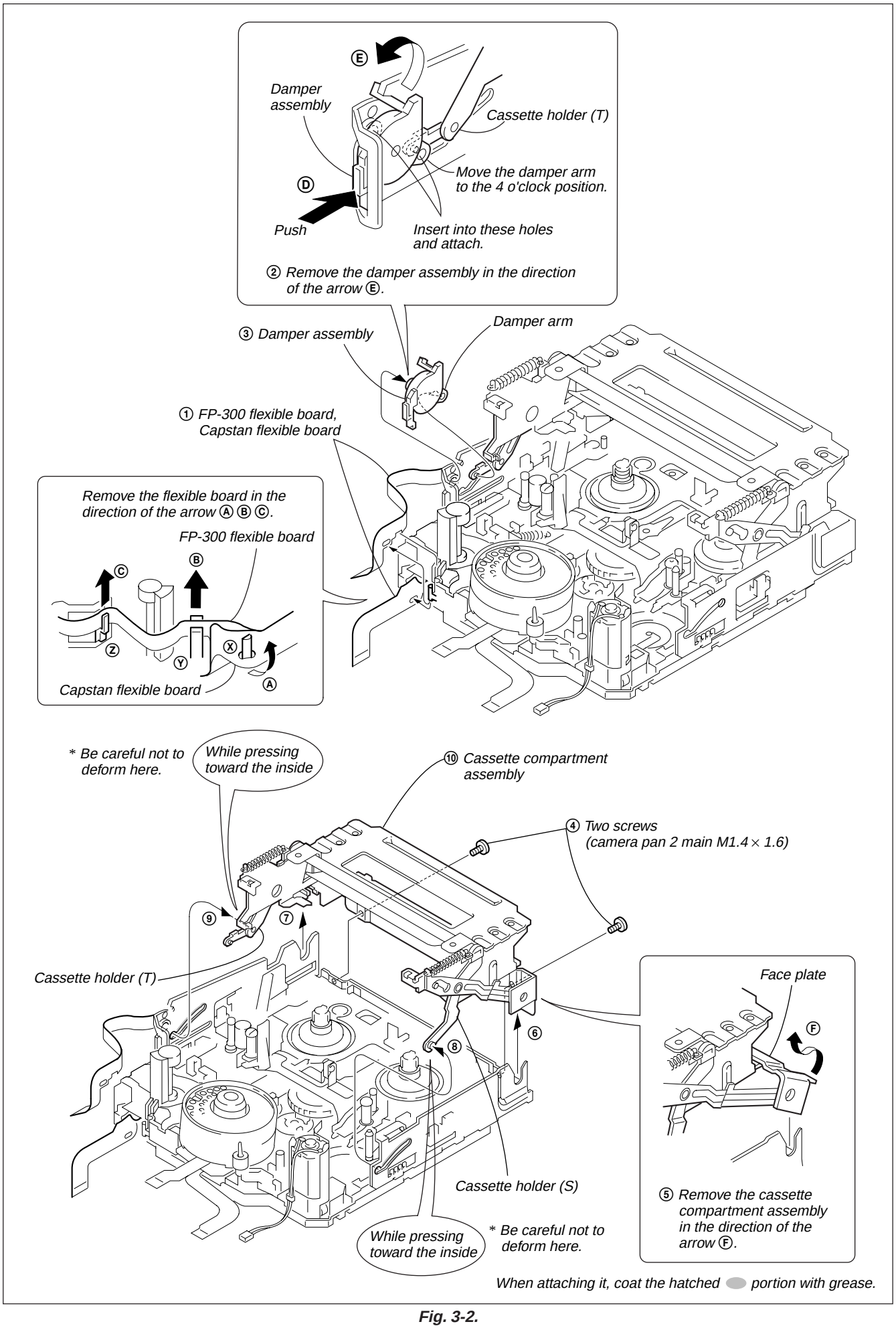

Ⓔ
Damper assembly
Cassette holder (T)
Move the damper arm to the 4 o'clock position.
Ⓓ
Push
Insert into these holes and attach.
② Remove the damper assembly in the direction of the arrow Ⓔ.
③ Damper assembly
Damper arm
① FP-300 flexible board, Capstan flexible board
Remove the flexible board in the direction of the arrow Ⓐ Ⓑ Ⓒ.
FP-300 flexible board
Ⓒ
Ⓑ
Ⓩ
Ⓨ
Ⓧ
Ⓐ
Capstan flexible board
* Be careful not to deform here.
While pressing toward the inside
⑩ Cassette compartment assembly
④ Two screws (camera pan 2 main M1.4 × 1.6)
⑨
⑦
Cassette holder (T)
⑥
⑧
Cassette holder (S)
While pressing toward the inside
* Be careful not to deform here.
Face plate
Ⓕ
⑤ Remove the cassette compartment assembly in the direction of the arrow Ⓕ.
When attaching it, coat the hatched portion with grease.

Fig. 3-2.

4. Check, Adjustment and Replacement

Note: For removal procedure of the cabinets, printed wiring boards and other parts, refer to "DISASSEMBLY" of the Service Manual of the respective models.

4-1. Drum Assembly

1. Removal procedure

1) Remove the three screws (drum fitting M1.4 × 2.5) ① fixing the drum and remove the drum.

2. Attachment procedure

1) Align the two reference holes A and B on the rear of the drum with the reference pins A and B of the drum base assembly.
2) Attach the drum with the three screws (drum fitting M1.4 × 2.5) ① in the order of Ⓐ, Ⓑ and Ⓒ.
   Tightening torque: 0.078 ± 0.01 N•m (0.8 ± 0.1 kgf•cm)
3) Clean the drum while referring to 2-1.
4) Adjust the tape path. (Refer to "4. Tape Path Adjustment".)

Note: Do not touch the outside circumference.

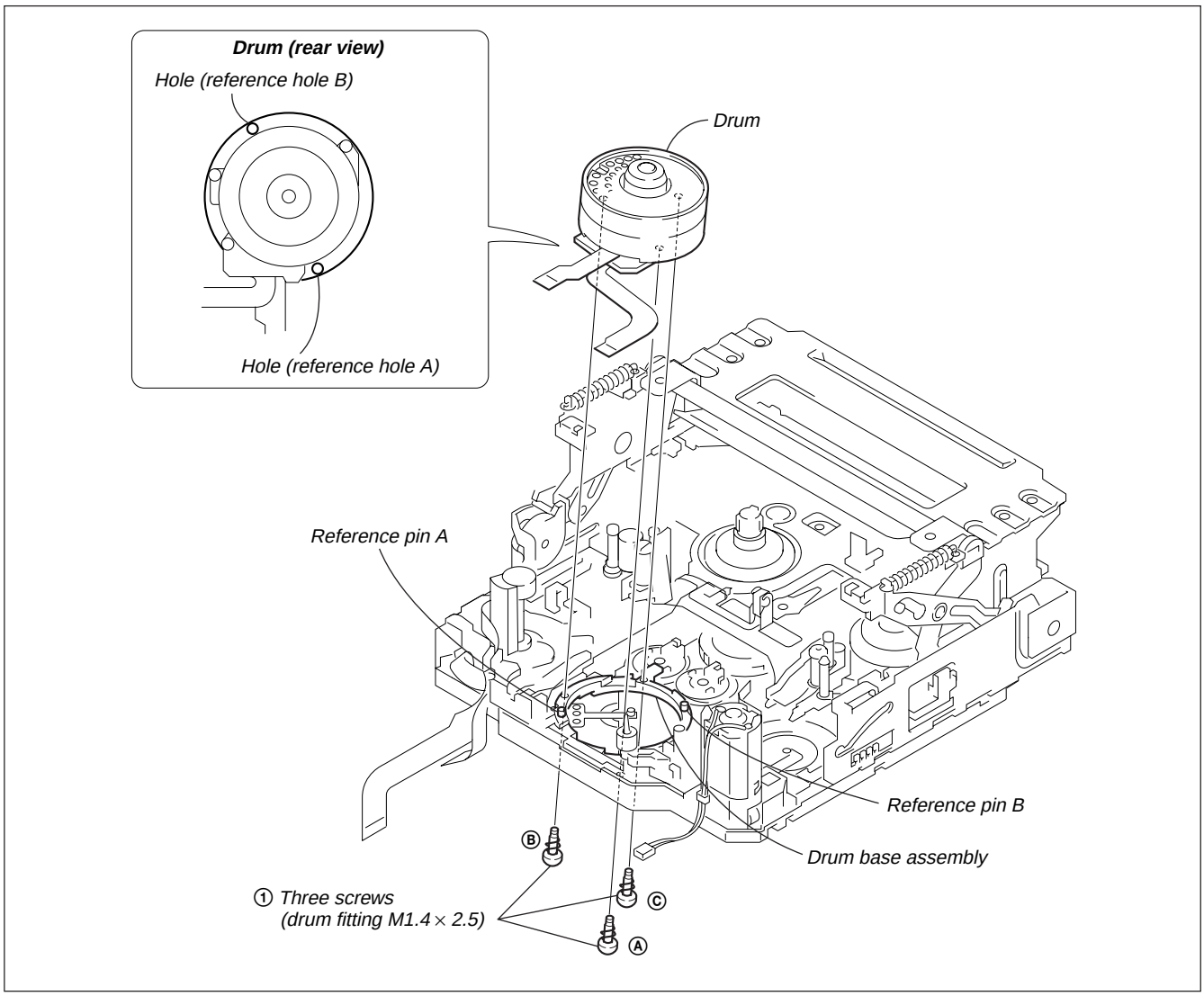


Fig. 4-1.

4-2. HCL Arm Assembly, Loading Motor Assembly

1. Removal procedure

1) Hook the HC arm spring in the direction of the arrow Ⓑ.
2) Remove the HCL arm assembly ② from the loading motor assembly ④.
3) Remove the screw (M1.4 × 2.5) ③.
4) Remove the three claws of the loading motor assembly ④ from the mechanism chassis assembly in the direction of the arrow Ⓐ.

2. Attachment procedure

1) Coat the worm shaft and gear of the loading motor assembly ④ with grease.
2) Insert the three claws of the loading motor assembly ④ into the groove on the mechanism chassis assembly.
3) Attach the screw (M1.4 × 2.5) ③.
   Tightening torque: 0.078 ± 0.01 N•m (0.8 ± 0.1 kgf•cm)
4) Check the position of the HCL arm assembly ② and the HC drive arm. Then attach the HCL arm assembly ② to the loading motor assembly ④.
5) Hook the HC arm spring ① on the notch of the loading motor assembly ④.
6) Clean the drum assembly. (Refer to section 2-1.)

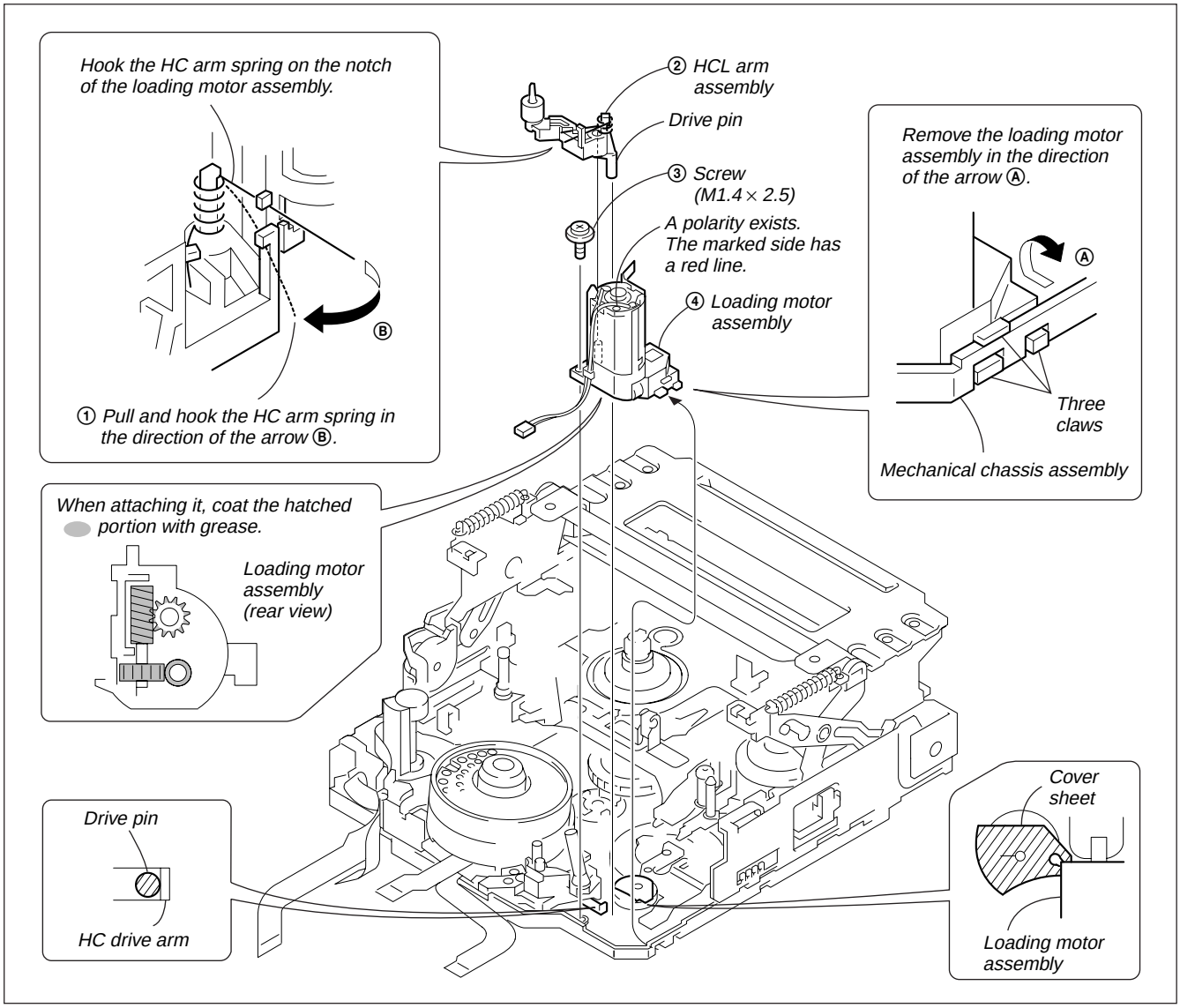

Hook the HC arm spring on the notch of the loading motor assembly.
Ⓑ
① Pull and hook the HC arm spring in the direction of the arrow Ⓑ.
② HCL arm assembly
Drive pin
③ Screw (M1.4 × 2.5)
A polarity exists. The marked side has a red line.
④ Loading motor assembly
Remove the loading motor assembly in the direction of the arrow Ⓐ.
Ⓐ
Three claws
Mechanical chassis assembly
When attaching it, coat the hatched portion with grease.
Loading motor assembly (rear view)
Drive pin
HC drive arm
Cover sheet
Loading motor assembly

Fig. 4-2.

4-3. Drum Base Assembly, Drum Earth

1. Removal procedure

1) Remove the capstan flexible board and flexible wiring board (FP-300) from the holders Ⓧ, Ⓨ and Ⓩ in the direction of the arrow.
2) Remove the drum assembly. (Refer to section 4-1.)
3) Remove the screw (M1.4 × 2.5) ②.
4) Remove the claw Ⓓ of the guide rail T2 ③ from the hole Ⓔ of the drum base assembly in the direction of the arrow Ⓕ.
5) Remove the three screws (M1.4 × 2.5) ④.
6) Remove the drum base assembly ⑤ in the direction of the arrow.
7) Remove the screw (screw assy PW M1.7 × 2.6) ⑥.
8) Remove the drum earth ⑦ and earth spacer ⑧.

2. Attachment procedure

1) Attach the ground spacer ⑧ and drum ground ⑦ with the screw (screw assy PW M1.7 × 2.6) ⑥.
   Tightening torque: 0.078 ± 0.01 N•m (0.8 ± 0.1 kgf•cm)
2) Align the drum base assembly ⑤ with the reference pin and tighten the three screws (M1.4 × 2.5) ④ in the order of Ⓖ, Ⓗ and Ⓘ.
3) Insert the claw Ⓓ of the guide rail T2③ into the hole Ⓔ of the drum base assembly ⑤ and tighten the screw (M1.4 × 2.5) ②.
   Tightening torque: 0.078 ± 0.01 N•m (0.8 kgf•cm)
4) Remove the drum assembly. (Refer to 4-1.)
5) Attach the flexible wiring board (FP-300) ① and capstan flexible board to the drum base assembly.
6) Clean the tape running path. (Refer to 2-2.)

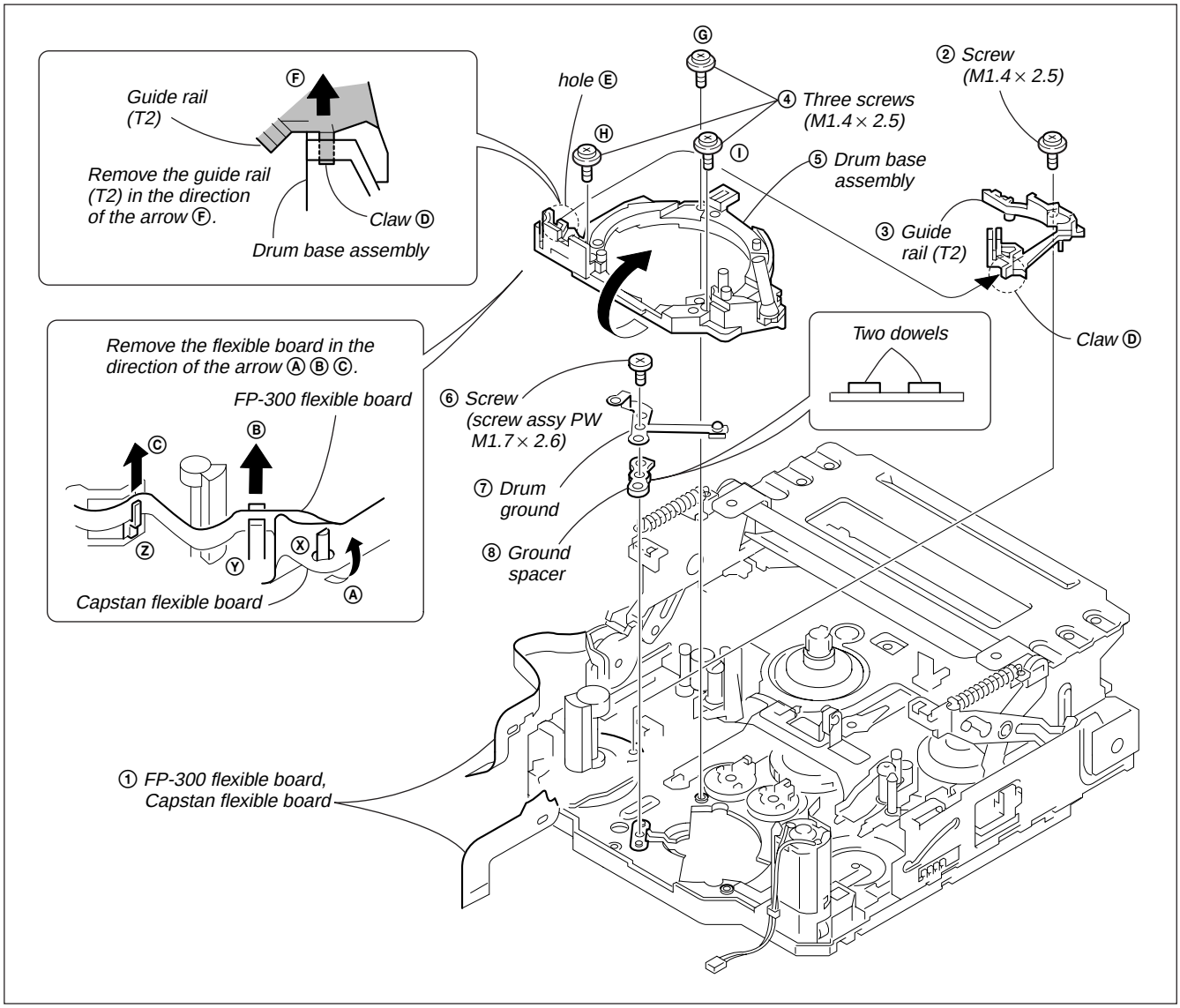


Fig. 4-3.

4-4. Guide Rail T2, Capstan Motor

1. Removal procedure

1) Remove the capstan flexible board and flexible wiring board (FP-300) ① from the holders Ⓧ, Ⓨ and Ⓩ in the directions of the arrows Ⓐ, Ⓑ and Ⓒ.
2) Remove the screw (M1.4 × 2.5) ②.
3) Remove the claw of the guide rail T2 ③ from the hole on the drum base assembly in the direction of the arrow Ⓓ.
4) Remove the six solderings ④.
5) Remove the FP-228 flexible wiring board (2P) (DEW sensor) ⑤.
6) Remove the two screws (camera pan2 main M1.4 × 1.6) ⑥ and the screw (SANG camera pan2 main M1.4 × 4.5) ⑦.
7) Remove the capstan motor ⑧.
8) Remove the capstan spring ⑨ (be careful not to drop the capstan spring) and timing belt ⑩.

2. Attachment procedure

1) Hook the timing belt ⑩ on the gear of the capstan motor ⑧, attach the capstan motor while aligning it with the reference boss of the mechanism chassis assembly.
2) Attach the screw (SANG camera pan2 M1.4 × 4.5) ⑦ and capstan spring ⑨. (temporally attachment)
3) Attach the two screws (camera pan2 M1.4 × 1.6) ⑥.
   Tightening torque: 0.078 ± 0.01 N•m (0.8 ± 0.1 kgf•cm)
4) Attach the six solderings ④ to the FP-228 flexible wiring board ⑤ (2P) (DEW sensor) and the FP-299 flexible wiring board (4P).
5) Insert the guide rail T2 ③ into the hole on the drum base assembly and tighten the screw (M1.4 × 2.5) ②.
   Tightening torque: 0.078 ± 0.01 N•m (0.8 ± 0.1 kgf•cm)
6) Attach the capstan flexible board and the flexible wiring board (FP-300) ① to the holders Ⓧ, Ⓨ and Ⓩ.
7) Adjust the height of the capstan motor using the thickness gauge (Ref. No. J-16). (Refer to 5-3.)

Note: Be careful not to touch the center of the capstan motor ⑩ shaft and the FP-228 flexible wiring board (DEW sensor) with soldering iron or other tool.

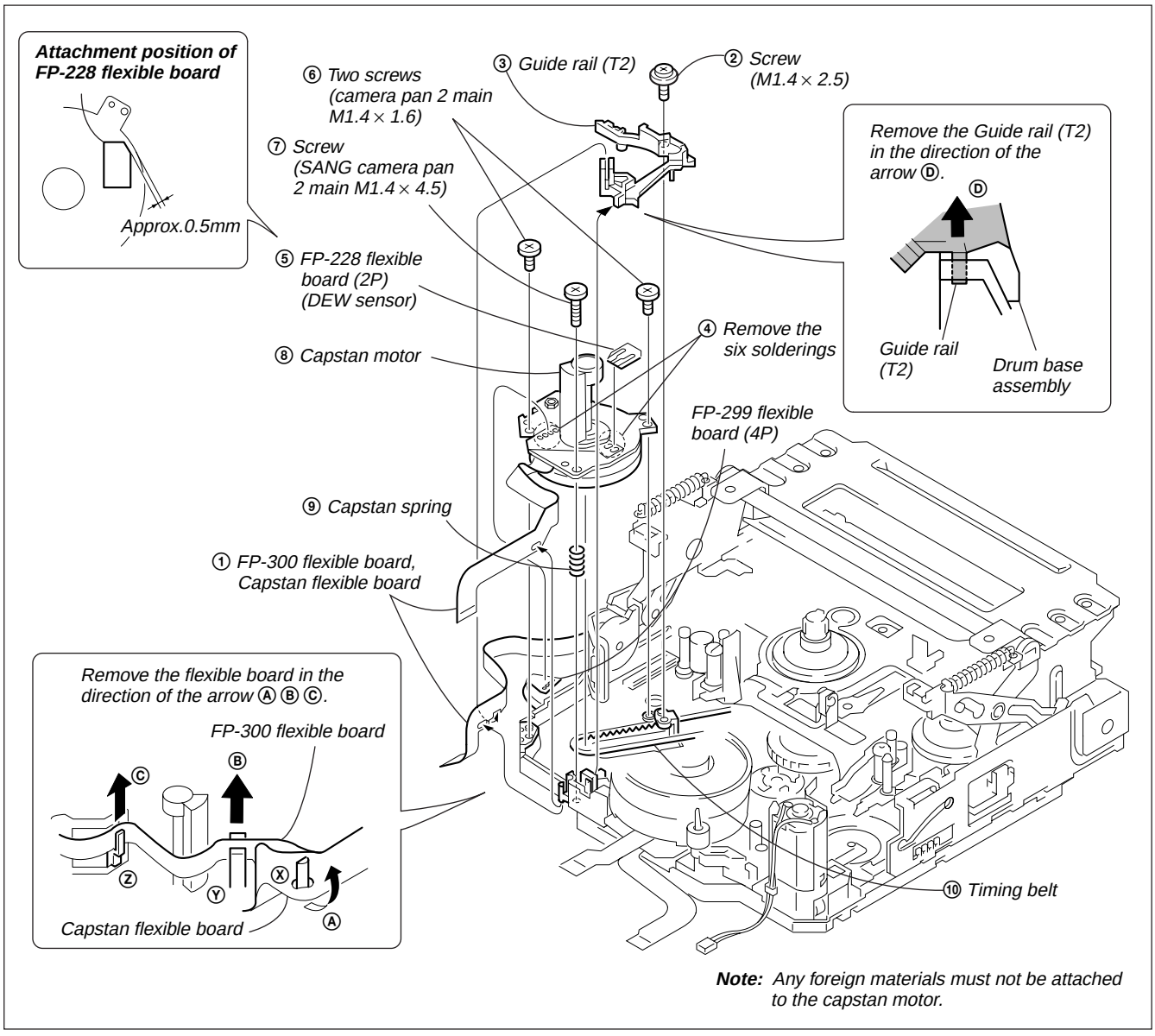

Attachment position of FP-228 flexible board
Approx.0.5mm
⑥ Two screws (camera pan 2 main M1.4 × 1.6)
③ Guide rail (T2)
② Screw (M1.4 × 2.5)
⑦ Screw (SANG camera pan 2 main M1.4 × 4.5)
Remove the Guide rail (T2) in the direction of the arrow Ⓓ.
Ⓓ
Guide rail (T2)
Drum base assembly
⑤ FP-228 flexible board (2P) (DEW sensor)
④ Remove the six solderings
⑧ Capstan motor
FP-299 flexible board (4P)
⑨ Capstan spring
① FP-300 flexible board, Capstan flexible board
Remove the flexible board in the direction of the arrow Ⓐ Ⓑ Ⓒ.
FP-300 flexible board
Ⓒ
Ⓑ
Ⓩ
Ⓨ
Ⓧ
Ⓐ
Capstan flexible board
⑩ Timing belt
Note: Any foreign materials must not be attached to the capstan motor.

Fig. 4-4.

4-5. Blind Plate, Lock Guide

1. Removal procedure

1) Remove the diode D001 (tape LED) ① from the notch of the plate ④.
2) Remove the flexible wiring board ② (FP-301) from T-shaped portion of the blind plate ④ in the direction of the arrow Ⓐ.
3) Remove the screw (camera pan2 main M1.4 × 1.6) ③.
4) Release the hook on the notches Ⓖ, Ⓓ, Ⓔ and Ⓕ of the blind plate ④ in the direction of the arrow Ⓑ.
5) Remove the reel release lever ⑤ in the direction of the arrow Ⓒ.

2. Attachment procedure

1) Attach the reel release lever ⑤ to the blind plate ④.
2) Hang the notches Ⓖ, Ⓓ, Ⓔ and Ⓕ of the blind plate ④ on the hook.
3) Attach the screw (camera pan2 main M1.4 × 1.6) ③.
   Tightening torque: 0.078 ± 0.01 N•m (0.8 ± 0.1 kgf•cm)
4) Attach the flexible wiring board (FP-301) ② to the T-shaped portion of the blind plate ④.
5) Attach the diode (tape LED) ① to the notch of the blind plate ④.

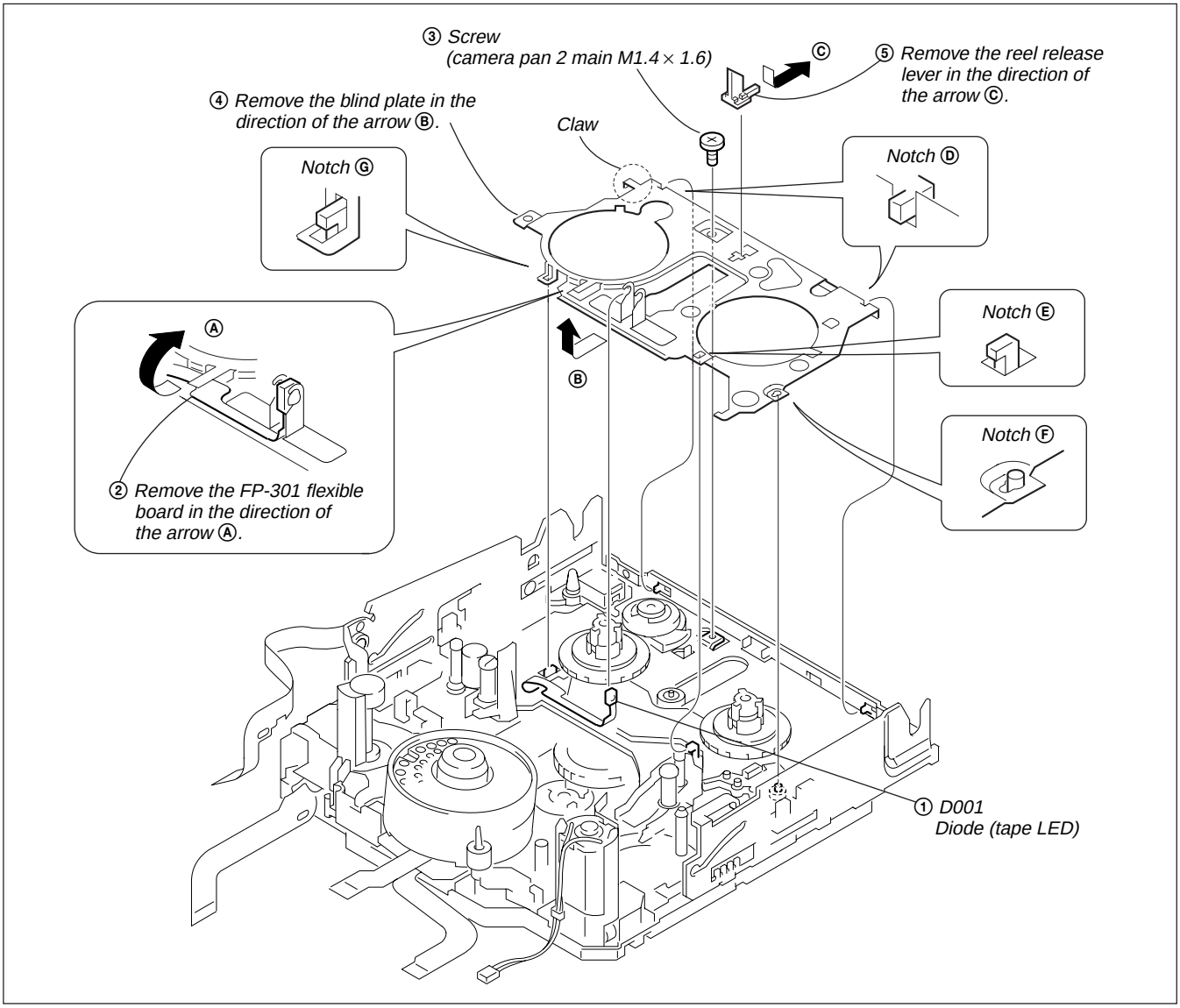

③ Screw
(camera pan 2 main M1.4 × 1.6)
Ⓒ
⑤ Remove the reel release lever in the direction of the arrow Ⓒ.
④ Remove the blind plate in the direction of the arrow Ⓑ.
Claw
Notch Ⓖ
Notch Ⓓ
Notch Ⓔ
Notch Ⓕ
Ⓐ
Ⓑ
② Remove the FP-301 flexible board in the direction of the arrow Ⓐ.
① D001
Diode (tape LED)

Fig. 4-5.

4-6. Reel Table (T) Assembly, T Soft Assembly

1. Removal procedure

1) Remove the blind plate. (Refer to 4-5.)
2) Open the claw of the reel table T assembly ① in the directions of the arrows Ⓑ and Ⓒ and remove the reel table T assembly.
3) Remove the T soft assembly ② in the direction of the arrow Ⓐ.
4) Remove the T ratchet spring ③.
5) Remove the T ratchet arm ④ in the direction of the arrow Ⓓ.

2. Attachment procedure

1) Insert the T ratchet arm ④ into the groove on the LS chassis block assembly to attach it.
2) Attach the T ratchet spring ③ to the notch of the T ratchet arm ④ and LS chassis block assembly.
3) Insert the T soft assembly into the groove on the LS chassis block assembly.
4) Check the location of the reel table T assembly and attach the LS chassis block assembly to the shaft.
5) Attach the blind plate. (Refer to 4-5.)

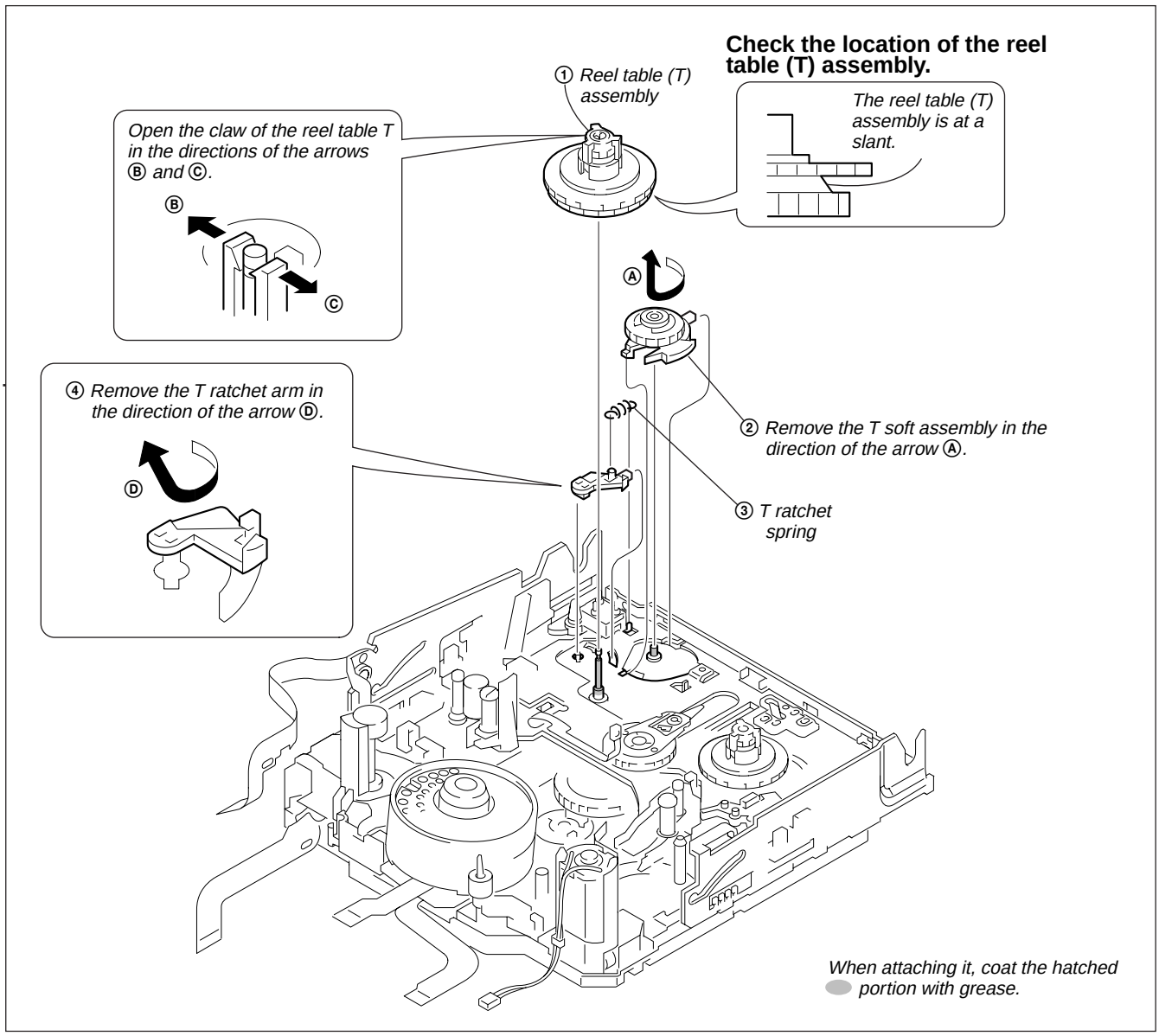

Check the location of the reel table (T) assembly.
① Reel table (T) assembly
The reel table (T) assembly is at a slant.
Open the claw of the reel table T in the directions of the arrows Ⓑ and Ⓒ.
Ⓑ
Ⓒ
Ⓐ
④ Remove the T ratchet arm in the direction of the arrow Ⓓ.
Ⓓ
② Remove the T soft assembly in the direction of the arrow Ⓐ.
③ T ratchet spring
When attaching it, coat the hatched portion with grease.

Fig. 4-6.

4-7. S Ratchet RE Plate, Cassette Guide S

1. Removal procedure

1) Remove the blind plate. (Refer to 4-5.)
2) Remove the RE return plate spring ①.
3) Remove the S ratchet spring ②.
4) Remove the S ratchet arm ③ in the direction of the arrow Ⓐ.
   Note: Do not reuse the S ratchet arm.
5) Remove the S ratchet RE plate.
6) Remove the screw (camera tapping M1.4 × 2)⑤.
7) Remove the cassette guide S ⑥ in the direction of the arrow Ⓑ.

2. Attachment procedure

1) Attach the cassette guide S ⑥ to the notch of the LS chassis block assembly with the screw (camera tapping M1.4 × 2).
2) Attach the S ratchet RE plate ④ to the shaft of the LS chassis block assembly.
3) Attach the S ratchet arm ③ to the shaft of the LS chassis block assembly. At this time, the dowel of the S ratchet RE plate ④ must be inserted into the U-shaped notch of the S ratchet arm ③.
4) Hook the S ratchet spring ② on the notch of the S ratchet arm and attach it to the notch of the LS chassis block assembly.
5) Attach the RE return plate spring ① to the notch of the LS chassis block assembly.
6) Attach the blind plate. (Refer to 4-5.)

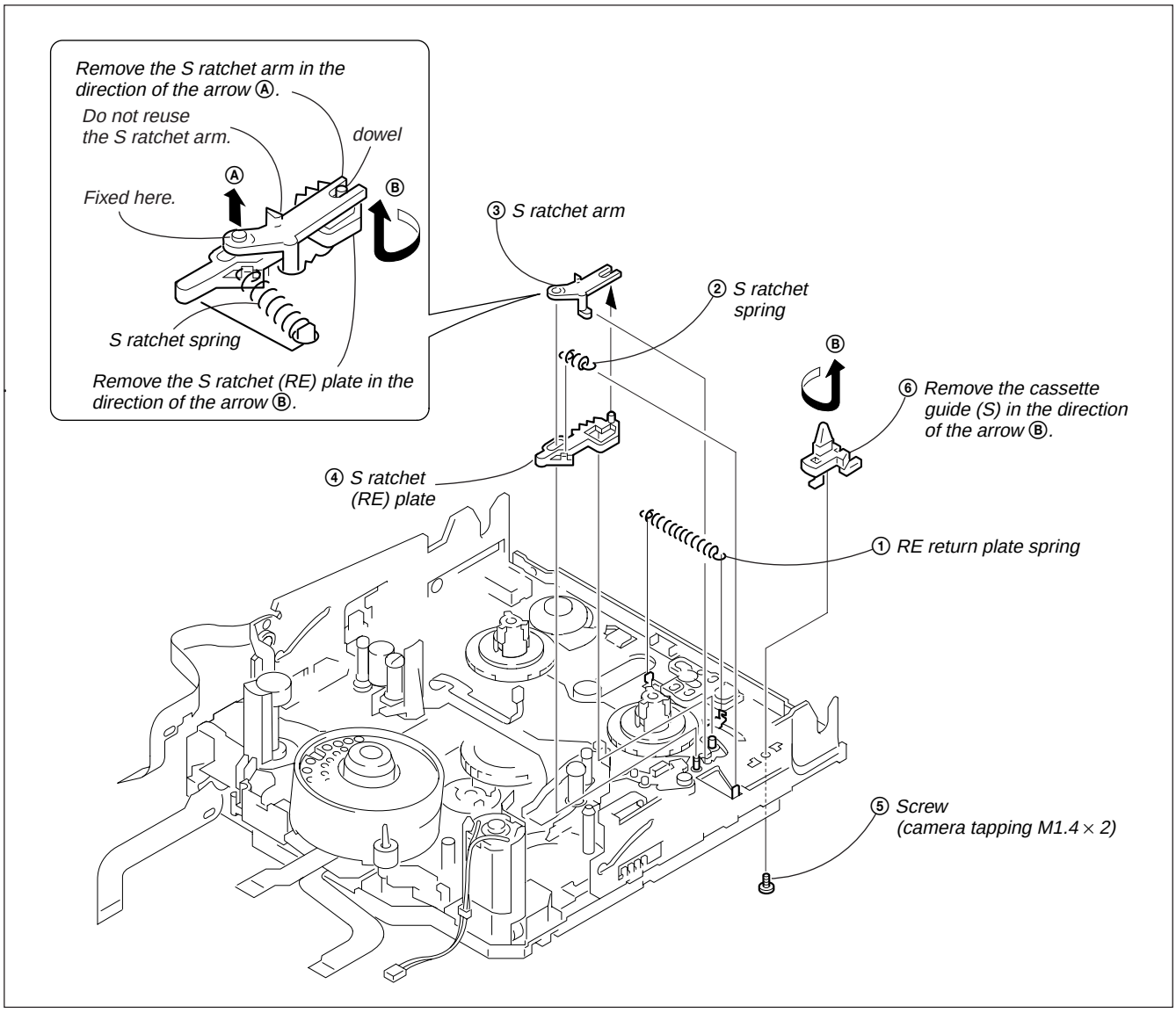

Remove the S ratchet arm in the direction of the arrow Ⓐ.
Do not reuse the S ratchet arm.
dowel
Fixed here.
Ⓐ
Ⓑ
S ratchet spring
Remove the S ratchet (RE) plate in the direction of the arrow Ⓑ.
③ S ratchet arm
② S ratchet spring
Ⓑ
⑥ Remove the cassette guide (S) in the direction of the arrow Ⓑ.
④ S ratchet (RE) plate
① RE return plate spring
⑤ Screw (camera tapping M1.4 × 2)

Fig. 4-7.

4-8. R Drive Gear Assembly, LS Cam Plate

1. Removal procedure

1) Remove the blind plate. (Refer to 4-5.)
2) Remove the lumiler cut washer (0.98 × 3 × 0.13) ①.
3) Remove the R drive gear assembly ②.
4) Remove the HLC cut (1.8 × 4 × 0.5) ③ and the two screws (precision type3 +P1.7 × 1.8) ④.
5) Remove the LS cam plate ⑤.

2. Attachment procedure

1) Attach the R drive gear assembly ② with the lumiler cut washer (0.98 × 3 × 0.13) ①.
2) Align the LS cam plate ⑤ with the two dowels of the LS chassis block assembly, temporarily fix the LS cam plate ⑤ with the two screws (precision type3 +P1.7 × 1.8), then attach it with the HLC cut (1.8 × 4 × 0.5) ③.
3) Adjust the position of the LS cam plate. (Refer to 4-9.)

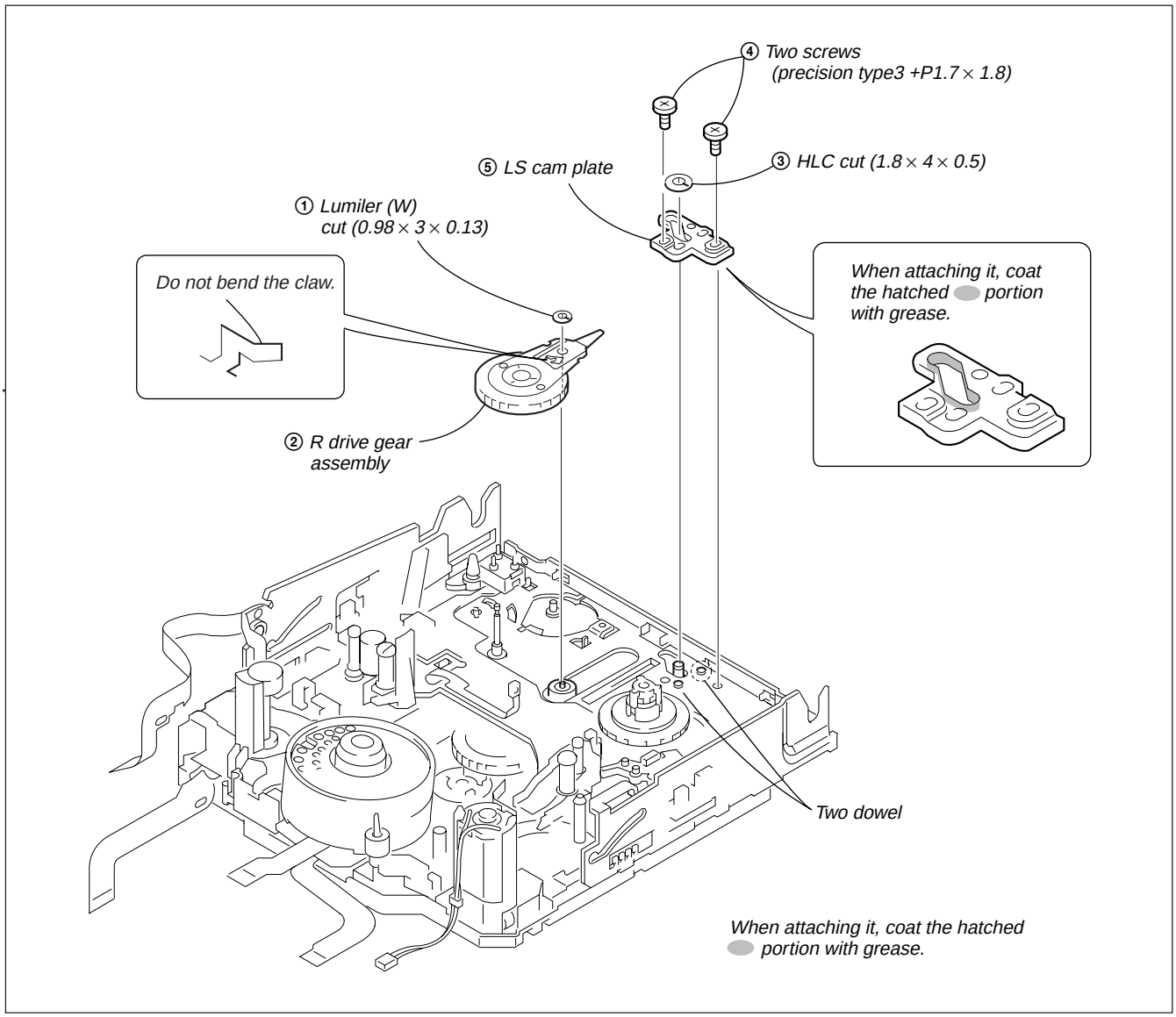

④ Two screws
(precision type3 +P1.7 × 1.8)
⑤ LS cam plate
③ HLC cut (1.8 × 4 × 0.5)
① Lumiler (W)
cut (0.98 × 3 × 0.13)
Do not bend the claw.
When attaching it, coat the hatched portion with grease.
② R drive gear assembly
Two dowel
When attaching it, coat the hatched portion with grease.

Fig. 4-8.

4-9. LS Cam Plate Position Adjustment

1. Adjustment Procedure

1) Perform loading of the LS chassis block assembly ① until the tip of the guide base (S) assembly reaches the drum base assembly.
2) Loosen the two screws (precision type3 +P1.7 × 1.8) ② of the LS cam plate and slide the LS chassis block assembly to the drum side so as to remove play.
3) Insert the thickness gauge 0.6 mm (Ref. No. J-16) between the LS cam plate and the LS chassis block assembly. Push the LS cam plate in the direction opposite to the drum to remove play.
4) Fix the two screws (precision type3 +P1.7 × 1.8) ②.
Tightening torque: 0.108 ± 0.01 N•m (1.1 kgf•cm)

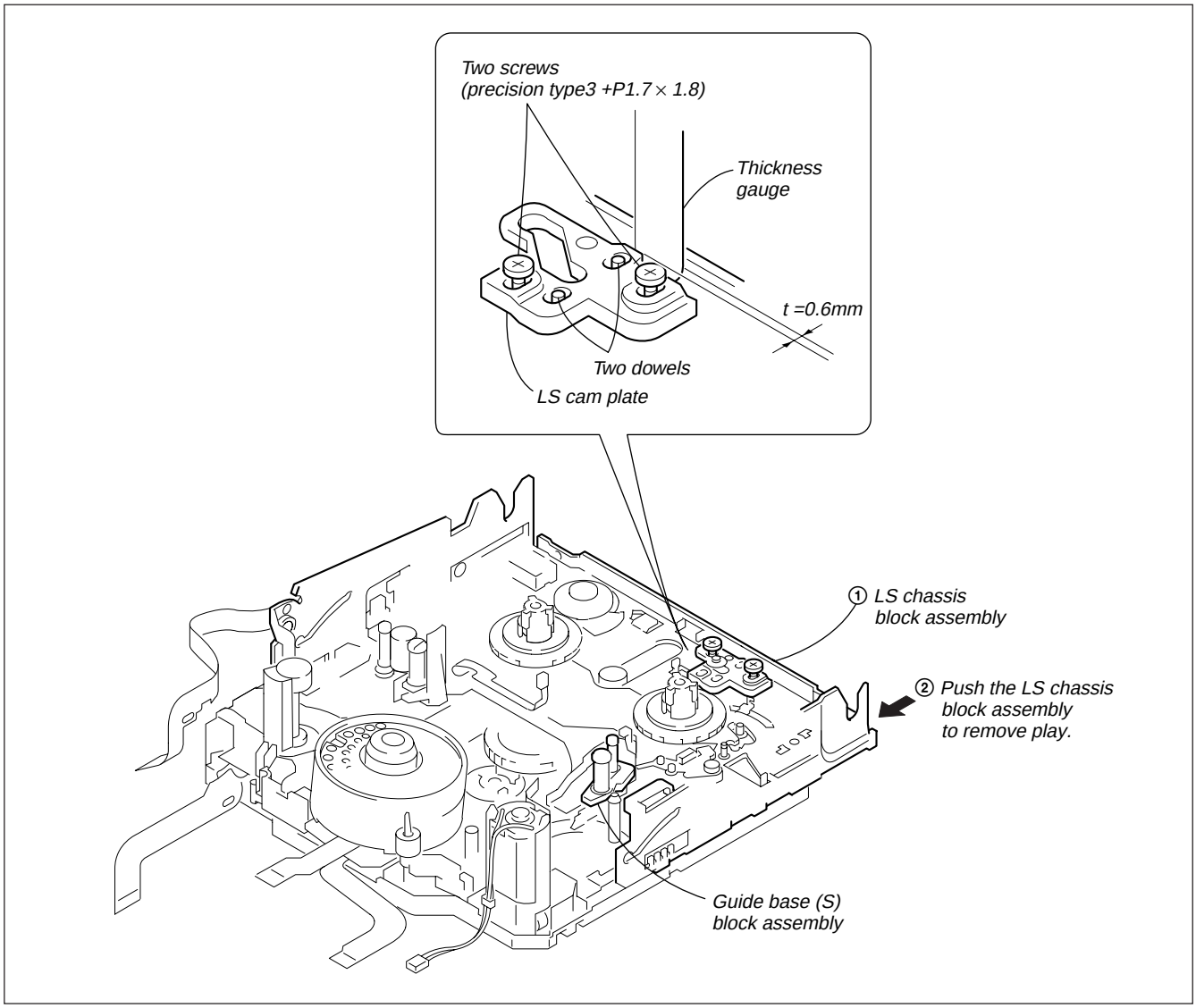

Two screws
(precision type3 +P1.7 × 1.8)
Thickness gauge
t =0.6mm
Two dowels
LS cam plate
① LS chassis block assembly
② Push the LS chassis block assembly to remove play.
Guide base (S) block assembly

Fig. 4-9.

4-10. LS Chassis Block Assembly

1. Removal procedure

1) Move the LS chassis block assembly between USE and LOAD.
2) Remove the blind plate. (Refer to 4-5.)
3) Remove the R drive gear assembly. (Refer to 4-8.)
4) Remove the HCL cut (1.8 × 4 × 0.5) ①.
5) Remove the three screws (M1.4 × 2.5) ②.
6) Remove the LS chassis block assembly ③ in the direction of the arrow Ⓐ.

2. Attachment procedure

1) Insert the LS guide roller and LS guide T2 pin of the mechanical chassis block assembly into the slot of the LS chassis block assembly ④.
2) Insert the pin of the LS arm assembly into the cam groove on the LS cam plate, face the TG7 drive pin ⑤ in the direction of the arrow Ⓑ, and insert it to the two slot of the mechanical chassis. Then, tighten the three screws (M1.4 × 2.5) ② in the order of Ⓒ, Ⓓ and Ⓔ.
   Tightening torque: 0.078 ± 0.01 N•m (0.8 ± 0.1 kgf•cm)
3) Attach the HCL cut (1.8 × 4 × 0.5) ① to the pin of the LS arm assembly.
4) Attach the R drive gear assembly. (Refer to 4-8.)
5) Attach the blind plate. (Refer to 4-5.)
6) Clean the tape running path. (Refer to 2-2.)

Note: Each arm must move smoothly.

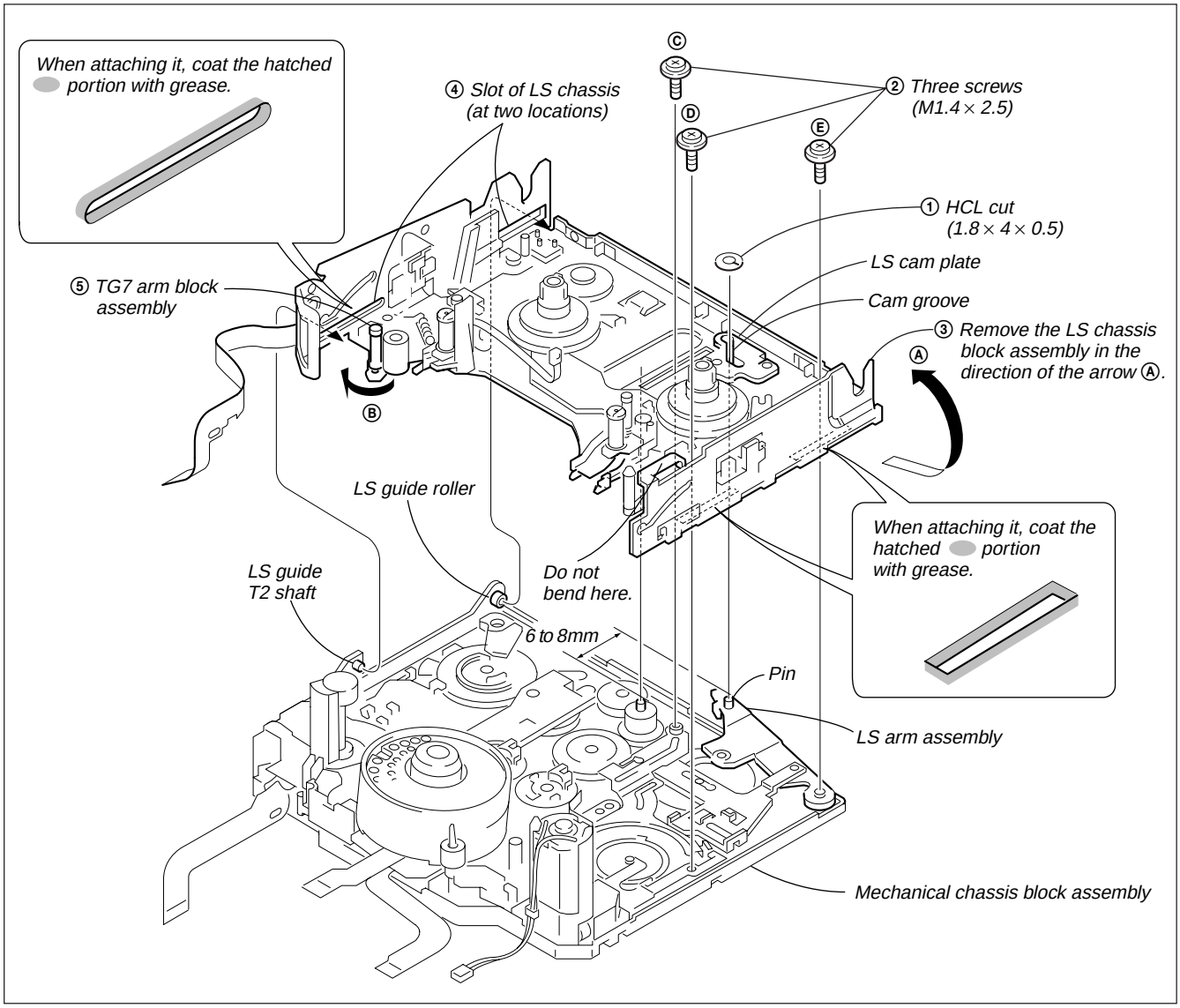

When attaching it, coat the hatched portion with grease.
④ Slot of LS chassis (at two locations)
Ⓒ
Ⓓ
Ⓔ
② Three screws (M1.4 × 2.5)
① HCL cut (1.8 × 4 × 0.5)
LS cam plate
Cam groove
⑤ TG7 arm block assembly
Ⓑ
③ Remove the LS chassis block assembly in the direction of the arrow Ⓐ.
Ⓐ
LS guide roller
When attaching it, coat the hatched portion with grease.
LS guide T2 shaft
Do not bend here.
6 to 8mm
Pin
LS arm assembly
Mechanical chassis block assembly

Fig. 4-10.

4-11. TG7 Arm Block Assembly, Pinch Arm Assembly

1. Removal procedure

1) Remove the LS chassis block assembly. (Refer to 4-10.)
2) Remove the screw (camera pan2 M1.4 × 1.6) ①.
3) Remove the TG7 retainer ② in the direction of the arrow.
4) Remove the TG7 arm block assembly ⑥ and TG7 arm spring ⑦.
5) Remove the pinch roller arm assembly ③.
6) Remove the P lim arm roller ④ and pinch arm load spring ⑤.

2. Attachment procedure

1) Attach the P lim arm roller ④ to the pinch roller arm assembly ③.
2) Insert one end of the pinch arm load spring ⑤ into the hole on the rising metal sheet of the LS chassis block assembly, and hook the other end of the spring on the position setting protrusion of the LS-057 board.
3) Attach the pinch roller arm assembly ③ to the shaft of the LS chassis block assembly, and hook the pinch arm load spring ⑤ on the rising metal sheet of the pinch roller assembly ③.
4) Hook the TG7 arm spring ⑦ on the shaft of the LS chassis block assembly while the hook side of the spring is facing downward.
5) When attaching the TG7 arm block assembly ⑥ to the shaft of the LS chassis block assembly, hook the hook side of the TG7 arm spring ⑦ on the rising metal sheet of the LS chassis block assembly and hook the top side of the spring to the notch of the TG7 arm block assembly ⑥.
6) Attach the TG7 retainer ② with the screw (camera pan2 M1.4 × 1.6) ①.
7) Remove the LS chassis block assembly. (Refer to 4-10.)
   Tightening torque: 0.078 ± 0.01 N•m (0.8 ± 0.1 kgf•cm)
8) Clean the tape running path. (Refer to 2-2.)

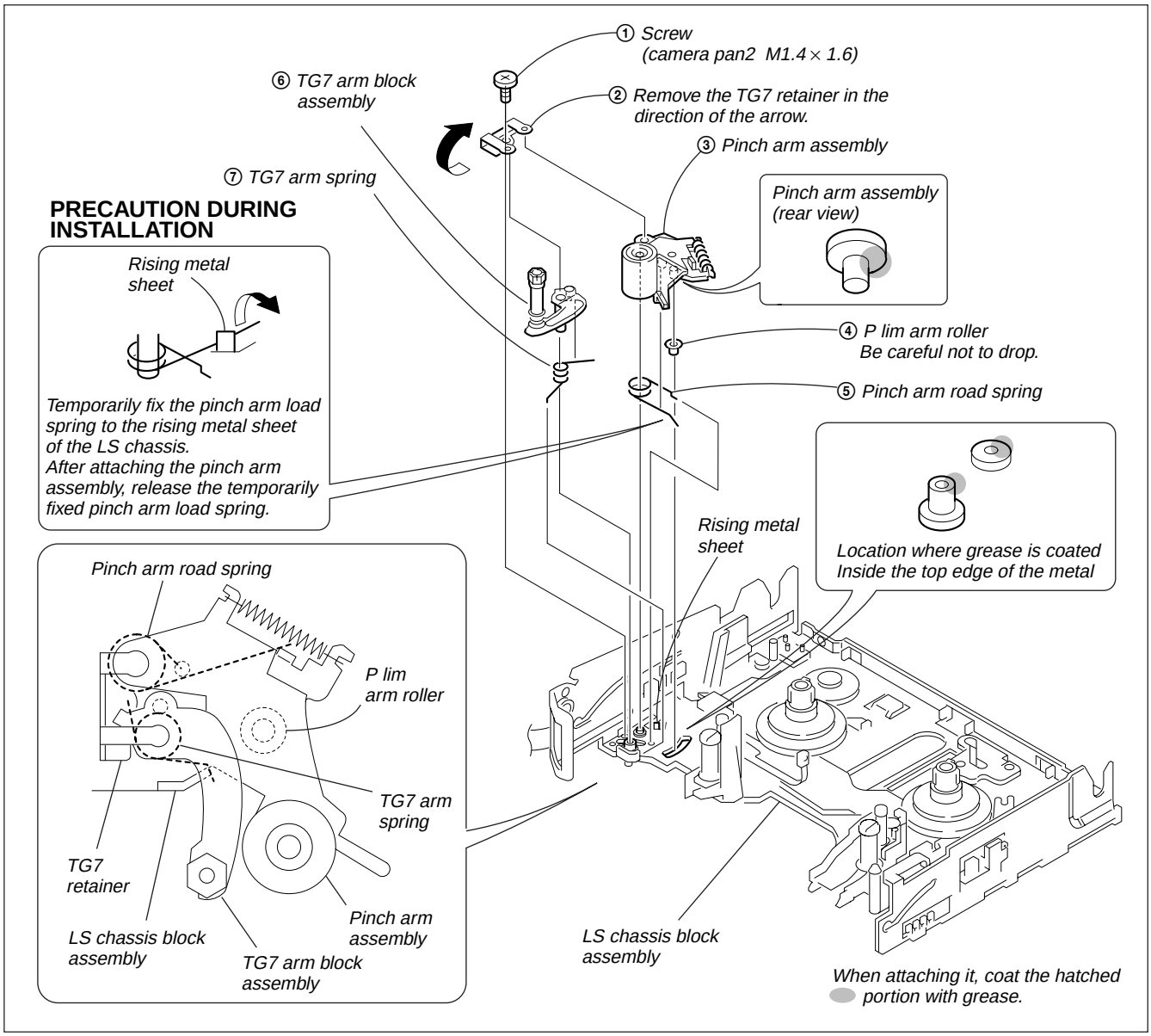

① Screw
(camera pan2 M1.4 × 1.6)
⑥ TG7 arm block assembly
② Remove the TG7 retainer in the direction of the arrow.
③ Pinch arm assembly
⑦ TG7 arm spring
Pinch arm assembly (rear view)
PRECAUTION DURING INSTALLATION
Rising metal sheet
Temporarily fix the pinch arm load spring to the rising metal sheet of the LS chassis.
After attaching the pinch arm assembly, release the temporarily fixed pinch arm load spring.
④ P lim arm roller
Be careful not to drop.
⑤ Pinch arm road spring
Rising metal sheet
Location where grease is coated
Inside the top edge of the metal
Pinch arm road spring
P lim arm roller
TG7 arm spring
TG7 retainer
LS chassis block assembly
Pinch arm assembly
TG7 arm block assembly
LS chassis block assembly
When attaching it, coat the hatched portion with grease.

Fig. 4-11.

4-12. Guide Base (T) Block Assembly, Guide Base (S) Block Assembly

1. Removal procedure

1) Remove the LS chassis block assembly. (Refer to 4-10.)
2) Align the claw of the guide base (T) block assembly ① with the notch of the guide arm T and remove the guide base (T) block assembly.
3) Remove the screw (M1.4 × 2.5) ② and remove the guide rail (T) ③.
4) Align the claw of the guide base (S) block assembly ④ with the notch of the guide arm S and remove the guide base (S) block assembly.
5) Remove the screw (M1.4 × 2.5) ⑤ and remove the guide rail (S) ⑥.

2. Attachment procedure

1) Align the holes on the guide rail (S) ⑥ with the protrusions (at two locations) of the LS chassis block assembly and attach the guide rail (S) ⑥ with the screw (M1.4 × 2.5) ⑤.
   Tightening torque: 0.078 ± 0.01 N•m (0.8 ± 0.1 kgf•cm)
2) Attach the guide base (S) block assembly ④ while aligning it with the groove on the guide arm S.
3) Align the holes on the guide rail (T) ③ with the protrusions (at two locations) of the LS chassis block assembly and attach the guide rail (T) ③ with the screw (M1.4 × 2.5) ②.
   Tightening torque: 0.078 ± 0.01 N•m (0.8 ± 0.1 kgf•cm)
4) Attach the guide base (T) block assembly ① while aligning it with the groove on the guide arm T.
   Note: Do not forget to hook the plate spring.
5) Withdraw the joint portion of the guide arm S and the guide arm T in the directions of the arrows Ⓐ and Ⓑ.
6) Attach the LS chassis block assembly to the mechanical chassis. (Refer to 4-10.)
7) Clean the tape running path. (Refer to 2-2.)

Note: Be careful of the shape of the guide base T/S block assembly.
Guide base (T) block assembly = Guide base (small)
Guide base (S) block assembly = Guide base (large)

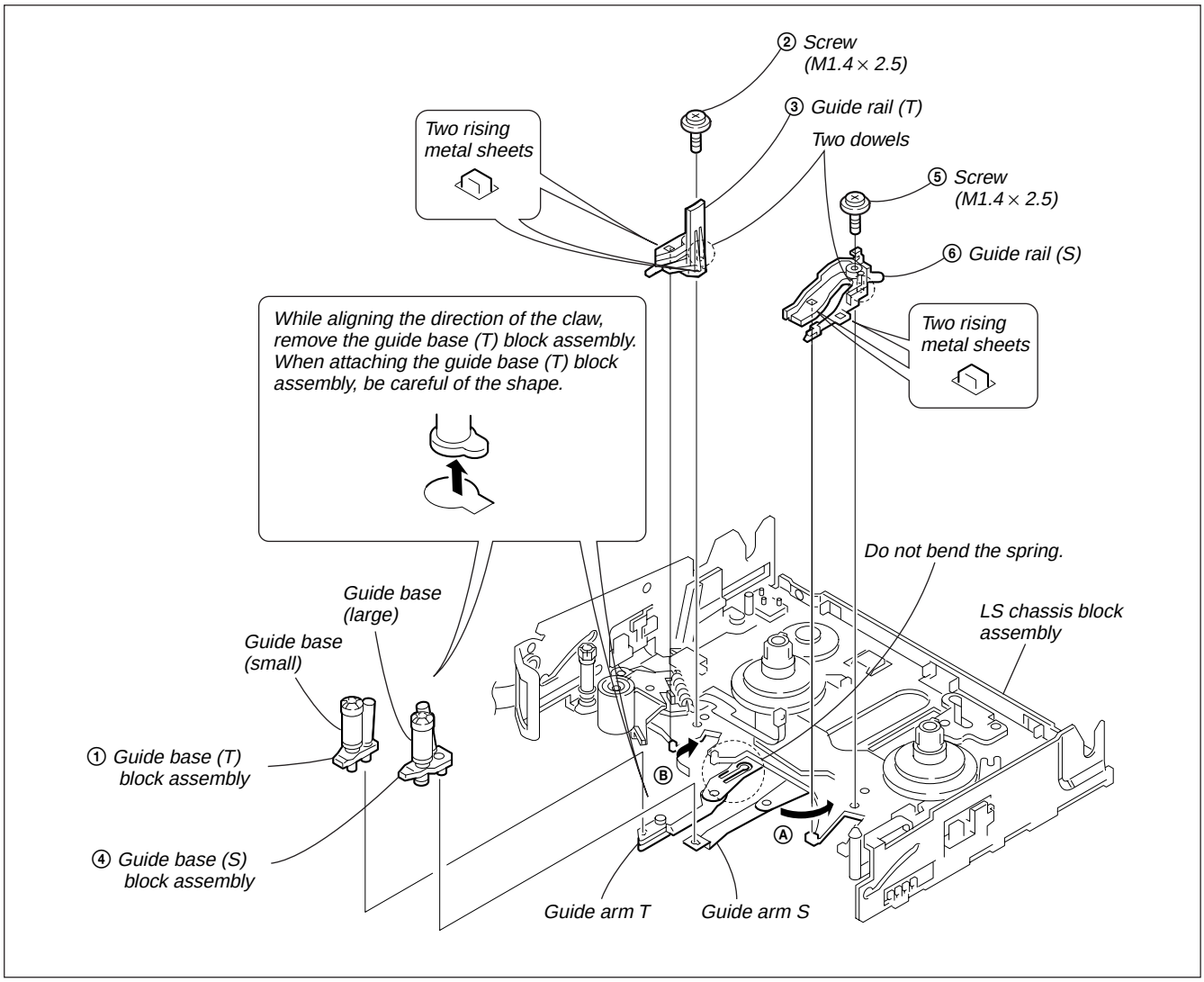

② Screw (M1.4 × 2.5)
③ Guide rail (T)
Two dowels
⑤ Screw (M1.4 × 2.5)
⑥ Guide rail (S)
Two rising metal sheets
Two rising metal sheets
While aligning the direction of the claw, remove the guide base (T) block assembly. When attaching the guide base (T) block assembly, be careful of the shape.
Do not bend the spring.
Guide base (large)
Guide base (small)
LS chassis block assembly
① Guide base (T) block assembly
④ Guide base (S) block assembly
Ⓑ
Ⓐ
Guide arm T
Guide arm S

Fig. 4-12.

4-13. TG1 Arm, Reel Table (S) Assembly, Push Switch (3Key)

1. Removal procedure

1) Remove the TG1 arm spring ①.
   Note: Take note of the position where the spring has been hooked.
2) Remove the TG1 arm ②.
3) Open the claw of the reel table (S) assembly ④ in the directions of the arrows Ⓑ and Ⓒ and remove the reel table S assembly.
4) Remove the RVS arm spring ⑤.
5) Rotate the S ratchet arm ③ in the direction of the arrow Ⓐ and remove the BT band assembly ⑥.
6) Remove the lock guide ⑦.
7) Remove the four solderings of the LS-057 board.
8) Remove the two claws ⑨ of the cassette guide T ⑫ from the notch of the LS chassis.
9) Remove the push switch (3key) ⑪ by releasing the two claws of the cassette guide T ⑫.

2. Attachment procedure

1) Attach the push switch (3key) ⑪ to the cassette guide T ⑫ with the two claws ⑩.
2) Attach the cassette guide T ⑫ to the notch of the LS chassis block assembly with the two claws ⑨.
3) Solder the cassette guide T ⑫ to the LS-057 board at the four locations.
4) Attach the lock guide ⑦.
5) Attach the BT band assembly ⑥.
6) Check the location of the reel table S ④. Then, rotate the S ratchet arm ③ in the direction of the arrow Ⓐ and insert the band of the BT band assembly ⑥ into the groove on the side.
7) Attach the BT band assembly to the TG1 arm ② and attach it to the mechanism chassis block assembly.
8) Check the shape of the hook of the TG1 arm spring ①. Hook one end of the spring on the TG1 arm ②. Then, hook the other end of the spring on the same location of the LS chassis block assembly where you have taken note when the spring is removed.
9) Attach the RVS arm spring.
10) Check the TG1 back-tension. (Refer to 5-1.)
    Note: The BT band assembly ⑤ must be completely inserted into the groove on the side of the reel table (S) ④.

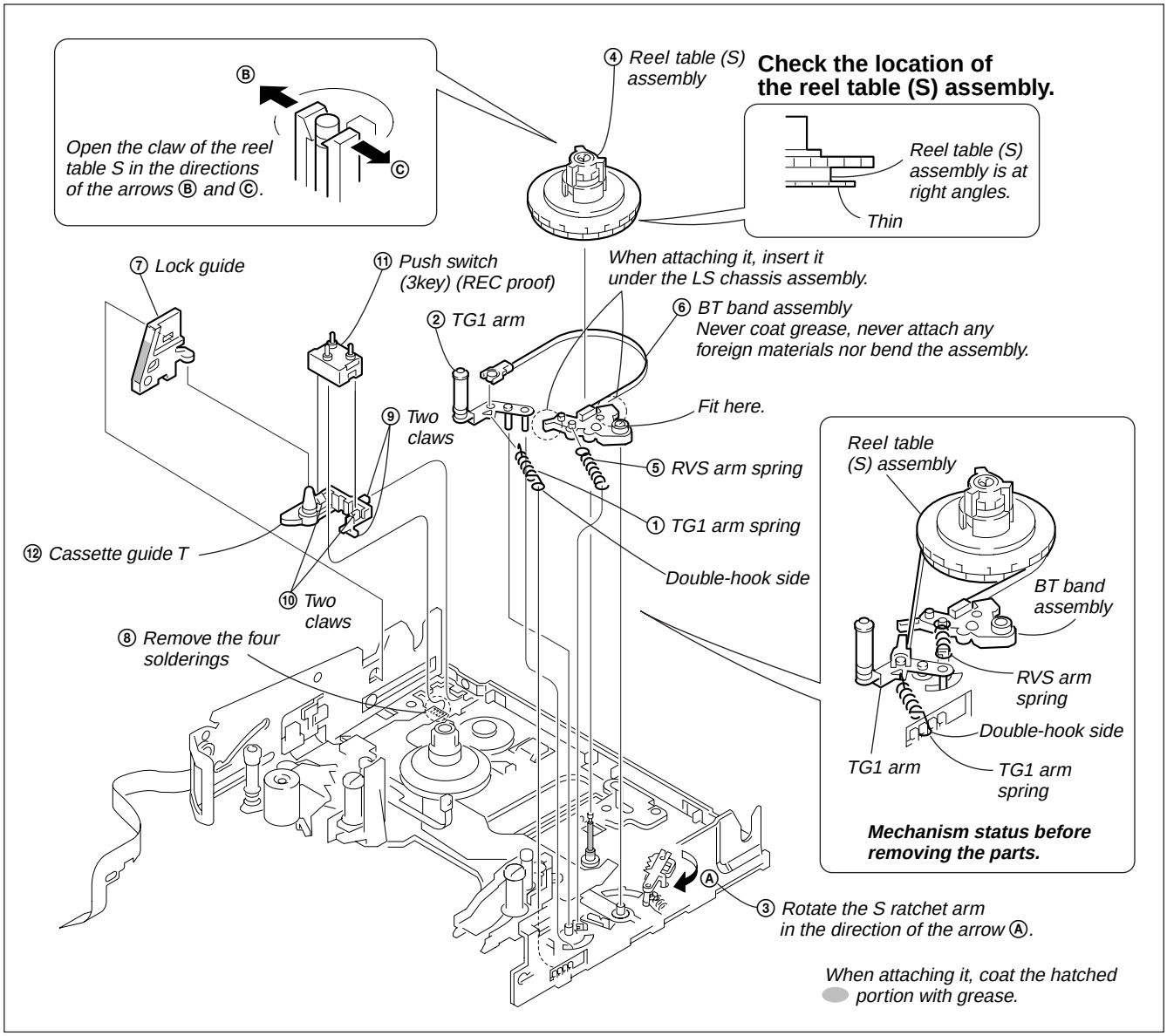

Ⓑ
Ⓒ
Open the claw of the reel table S in the directions of the arrows Ⓑ and Ⓒ.
④ Reel table (S) assembly
Check the location of the reel table (S) assembly.
Reel table (S) assembly is at right angles.
Thin
⑦ Lock guide
⑪ Push switch (3key) (REC proof)
When attaching it, insert it under the LS chassis assembly.
② TG1 arm
⑥ BT band assembly
Never coat grease, never attach any foreign materials nor bend the assembly.
Fit here.
⑨ Two claws
⑤ RVS arm spring
① TG1 arm spring
⑫ Cassette guide T
Double-hook side
⑩ Two claws
⑧ Remove the four solderings
Reel table (S) assembly
BT band assembly
RVS arm spring
Double-hook side
TG1 arm
TG1 arm spring
Mechanism status before removing the parts.
Ⓐ
③ Rotate the S ratchet arm in the direction of the arrow Ⓐ.
When attaching it, coat the hatched portion with grease.

Fig. 4-13.

4-14. Hall Element (H001, H002 (T/S Reel)), Photo Transistor (Q001, Q002 (Tape Top/Tape End), D001 (Tape LED)), LED (D001 (Tape LED))

1. Removal procedure

1) Remove the LS chassis block assembly. (Refer to 4-10.)
2) Remove the LS grease cover.
3) Remove the two solderings and remove Q001 (tape top).
4) Remove the two solderings and remove Q002 (tape end).
5) Remove the two solderings and remove D001 (tape LED).
6) Remove the four solderings respectively from H001 (T reel) and H002 (S reel) and remove the H001 and H002.

2. Attachment procedure

1) Solder H001 (T reel) and H002 (S reel) respectively at the four locations.
2) Solder Q002 (tape end) at the two locations.
3) Solder Q001 (tape top) at the two locations.
4) Solder D001 (tape LED) at the two locations.
5) Attach the LS grease cover.
6) Attach the LS chassis block assembly to the mechanical chassis. (Refer to 4-10.)

Note: Be careful of the plarities of the Hall element (H001, H002), Photo-transistor (Q001, Q002) and LED (D001).

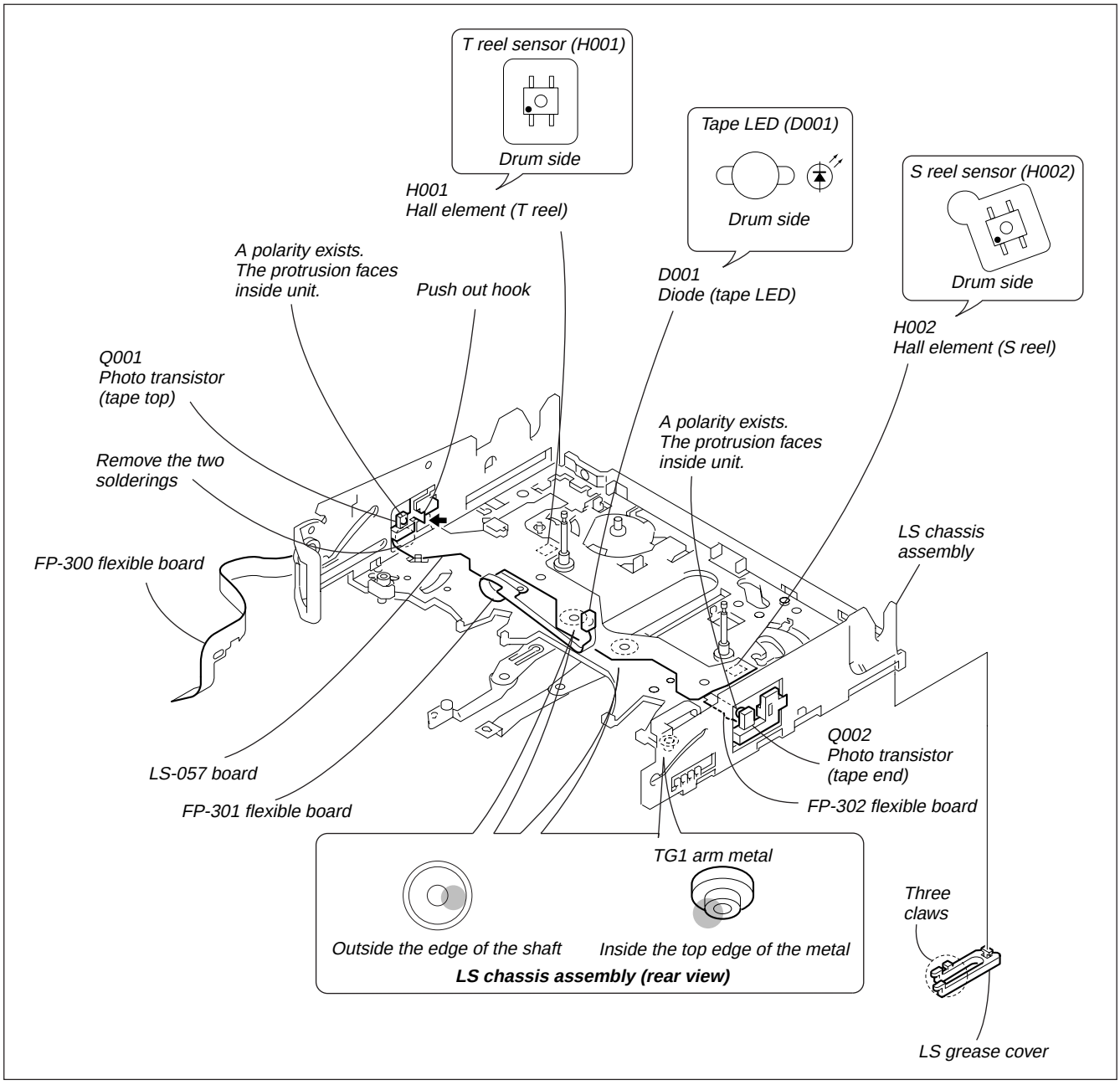


Fig. 4-14.

4-15. LS Guide Roller, Guide Lock Plate (T), Pinch Pusher Assembly, Eject Arm

1. Removal procedure

1) Remove the LS chassis block assembly. (Refer to 4-10.)
2) Remove the LS guide roller ①.
3) Remove the P pressure plate spring ②.
4) Remove the HLW cut (0.98 × 3 × 0.25) ③.
5) Remove the pitch pressure plate assembly ④ in the direction of the arrow Ⓐ.
6) Remove the relay gear ⑤.
7) Remove the screw (camera pan2 M1.4 × 1.6) ⑥.
8) Remove the guide lock plate (T) ⑦ in the direction of the arrow Ⓑ.
9) Remove the eject arm spring ⑧ and HLW cut (0.98 × 3 × 0.25) ⑨.
   Note: Do not reuse the HLW cut.
10) Remove the eject arm ⑩.

2. Attachment procedure

1) Attach the eject arm spring ⑧ to the eject arm ⑩.
2) Hook one end of the eject arm spring ⑧ on the protrusion of the main chassis block assembly and attach the eject arm to the shaft.
3) Attach the HLW cut (0.98 × 3 × 0.25) ⑨.
   Do not reuse the HLW cut.
4) Attach the guide lock plate T ⑦ while aligning it with the notches Ⓒ and Ⓓ.
5) Attach the screw (camera pan2 M1.4 × 1.6) ⑥.
   Tightening torque: 0.078 ± 0.01 N•m (0.8 ± 0.1 kgf•cm)
6) Attach the relay gear ⑤.
7) Attach the pinch pusher plate ④ with the HLW cut (0.98 × 3 × 0.25) ③.
8) Attach the P pressure plate spring ②.
   Insert the concave side of the LS guide roller ① into the shaft to attach the LS guide roller.
   Note: Insert the roller completely.
9) Attach the LS chassis block assembly to the mechanical chassis. (Refer to 4-10.)

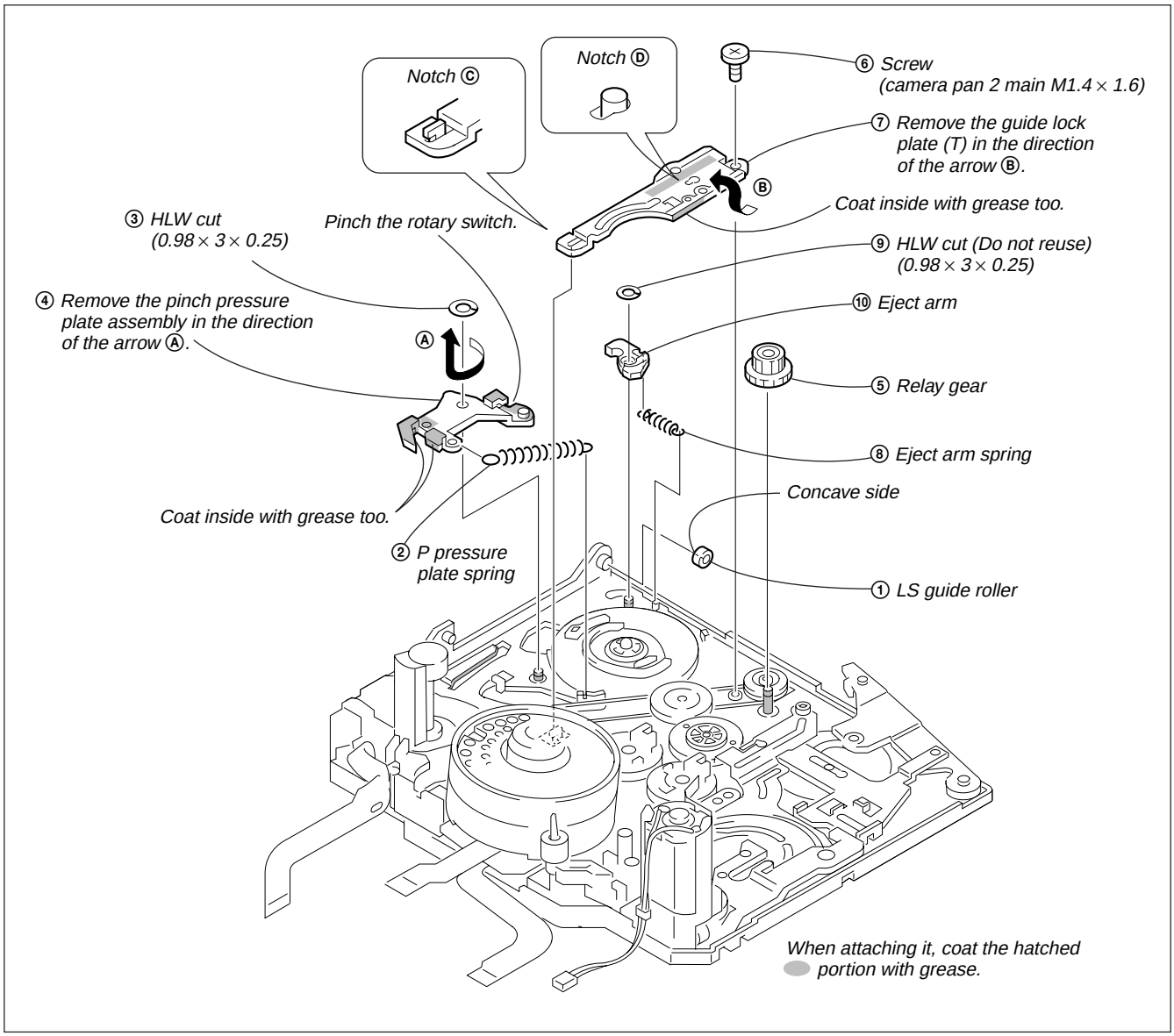

Notch Ⓒ
Notch Ⓓ
⑥ Screw (camera pan 2 main M1.4 × 1.6)
⑦ Remove the guide lock plate (T) in the direction of the arrow Ⓑ.
Ⓑ
Coat inside with grease too.
③ HLW cut (0.98 × 3 × 0.25)
Pinch the rotary switch.
⑨ HLW cut (Do not reuse) (0.98 × 3 × 0.25)
④ Remove the pinch pressure plate assembly in the direction of the arrow Ⓐ.
Ⓐ
⑩ Eject arm
⑤ Relay gear
⑧ Eject arm spring
Concave side
Coat inside with grease too.
② P pressure plate spring
① LS guide roller
When attaching it, coat the hatched portion with grease.

Fig. 4-15.

4-16. Rotary Switch, Cam Relay Gear, Change Gear Assembly, Timing Belt

Before replacing the timing belt, remove the guide rail T2 and capstan motor. (Refer to 4-4.)

1. Removal procedure

1) Remove the LS chassis block assembly. (Refer to 4-10.)
2) Remove the guide lock plate (T), pinch pressure assembly and eject arm. (Refer to 4-15.)
3) Remove the cam relay gear ①.
4) Remove the timing belt ②.
5) Remove the HLW cut (0.98 × 3 × 0.25) ③ and change gear assembly ④.
6) Remove the four solderings ⑤ and remove the FP-299 flexible wiring board ⑥.
7) Push up the dowel of the rotary switch ⑦ from the bottom of the mechanism chassis assembly and remove the rotary switch in the direction of the arrow.

2. Attachment procedure

1) Insert the dowel of the rotary switch ⑦ into the hole on the mechanism chassis assembly and attach the rotary switch clockwise.
2) Align the FP-299 flexible wiring board ⑥ with the reference hole on the mechanism chassis and solder the flexible wiring board to the rotary switch ⑦ (at four locations).
3) Attach the change gear assembly ④ with the HLC cut (0.98 × 3 × 0.25)③.
4) Attach the timing belt ②.
   Note: There must be a clearance between the rotary switch ⑦ and timing belt ②.
5) Attach the cam relay gear ①.
   The in-phase markings of the rotary switch ⑦, cam relay gear (2) and cam relay gear (1) must be aligned.
6) Attach the guide lock plate (T), pinch pressure assembly and eject arm. (Refer to 4-15.)
7) Attach the LS chassis block assembly to the mechanical chassis. (Refer to 4-10.)
8) Clean the shaft of the capstan motor. (Refer to 2-2.)

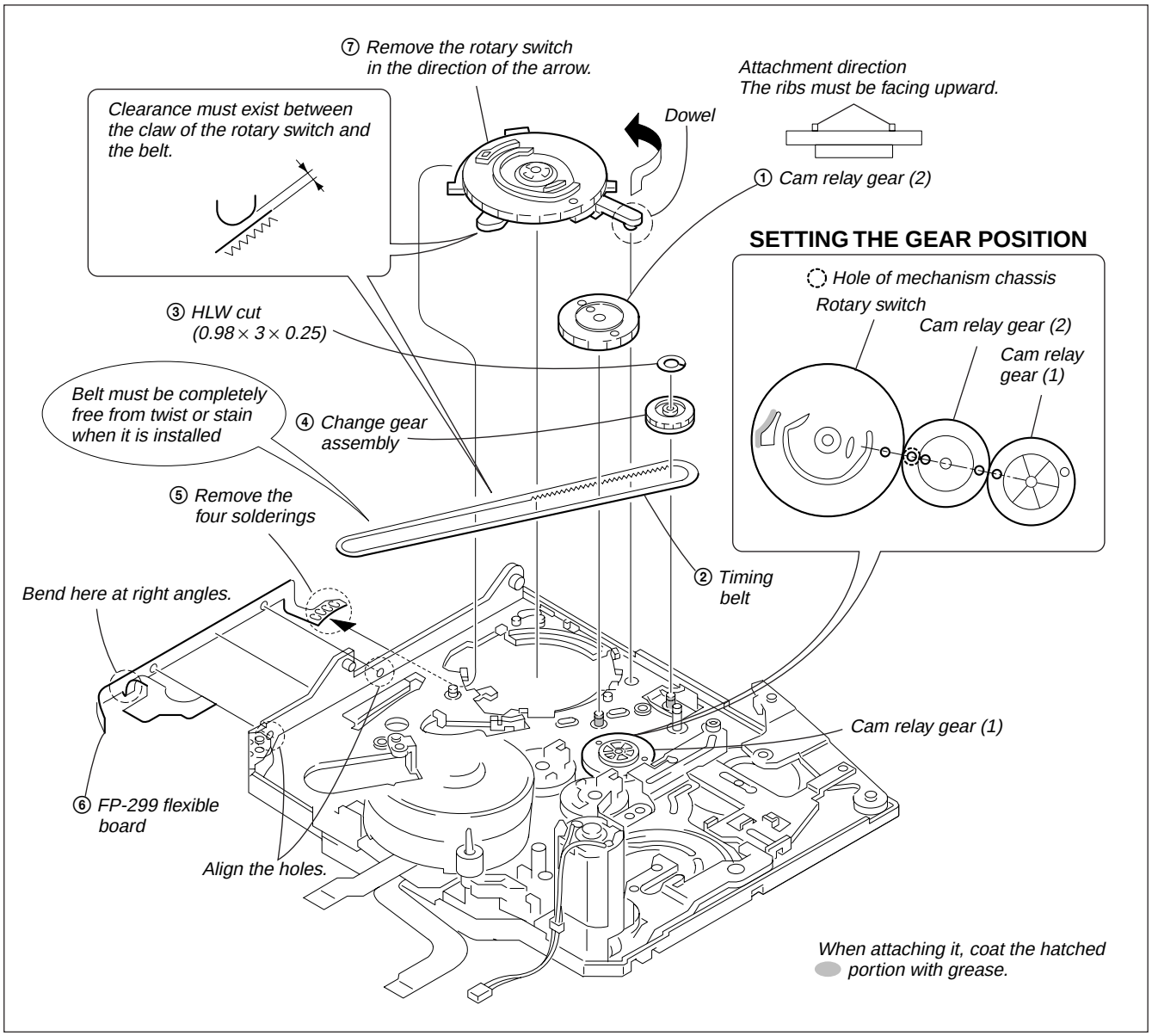

⑦ Remove the rotary switch in the direction of the arrow.
Attachment direction
The ribs must be facing upward.
Clearance must exist between the claw of the rotary switch and the belt.
Dowel
① Cam relay gear (2)
SETTING THE GEAR POSITION
Hole of mechanism chassis
Rotary switch
Cam relay gear (2)
Cam relay gear (1)
③ HLW cut (0.98× 3× 0.25)
Belt must be completely free from twist or stain when it is installed
④ Change gear assembly
⑤ Remove the four solderings
② Timing belt
Bend here at right angles.
Cam relay gear (1)
⑥ FP-299 flexible board
Align the holes.
When attaching it, coat the hatched portion with grease.

Fig. 4-16.

4-17. Guide Gear Assembly, Guide Gear T Assembly, Cam Relay Gear 1, Guide Lock Plate (S)

1. Removal procedure

1) Remove the LS chassis block assembly. (Refer to 4-10.)
2) Remove the screw (camera pan2 main M1.4 × 1.6) ①.
3) Remove the guide lock plate (S) ② in the direction of the arrow Ⓐ.
4) Remove the two stop rings (E type 1.2) ③.
5) Remove the guide gear (S) assembly ④ and guide gear (T) assembly ⑤.
6) Remove the HLW cut (0.98 × 3 × 0.25) ⑥.
7) Remove the cam relay gear (1) ⑦.

2. Attachment procedure

1) Attach the cam relay gear (1) ⑦ with the HLW cut (0.98 × 3 × 0.25) ⑥.
   Note: The in-phase markings of the cam relay gear (1) ⑦, cam gear (2) and cam relay gear must be aligned.
2) Attach the guide gear (T) assembly ⑤ and guide gear (S) assembly ④ to the shaft in this order and adjust the positions. Then, attach them with the two stop rings (E type 1.2) ③.
   Note1: The in-phase markings of the GL arm assembly, guide gear (S) ④ and guide gear (T) ⑤ must be aligned.
   Note2: The guide gear assembly (S/T) has a different shape respectively. Pay attention to the shapes.
3) Fit the guide lock plate (S) ② in the groove on the shaft and insert the portion Ⓑ into the notch. Then, attach the plate with the screw (camera pan2 main M1.4 × 1.6) ①.
   Tightening torque: 0.078 ± 0.01 N•m (0.8 ± 0.1 kgf•cm)
4) Attach the LS chassis block assembly to the mechanical chassis. (Refer to 4-10.)

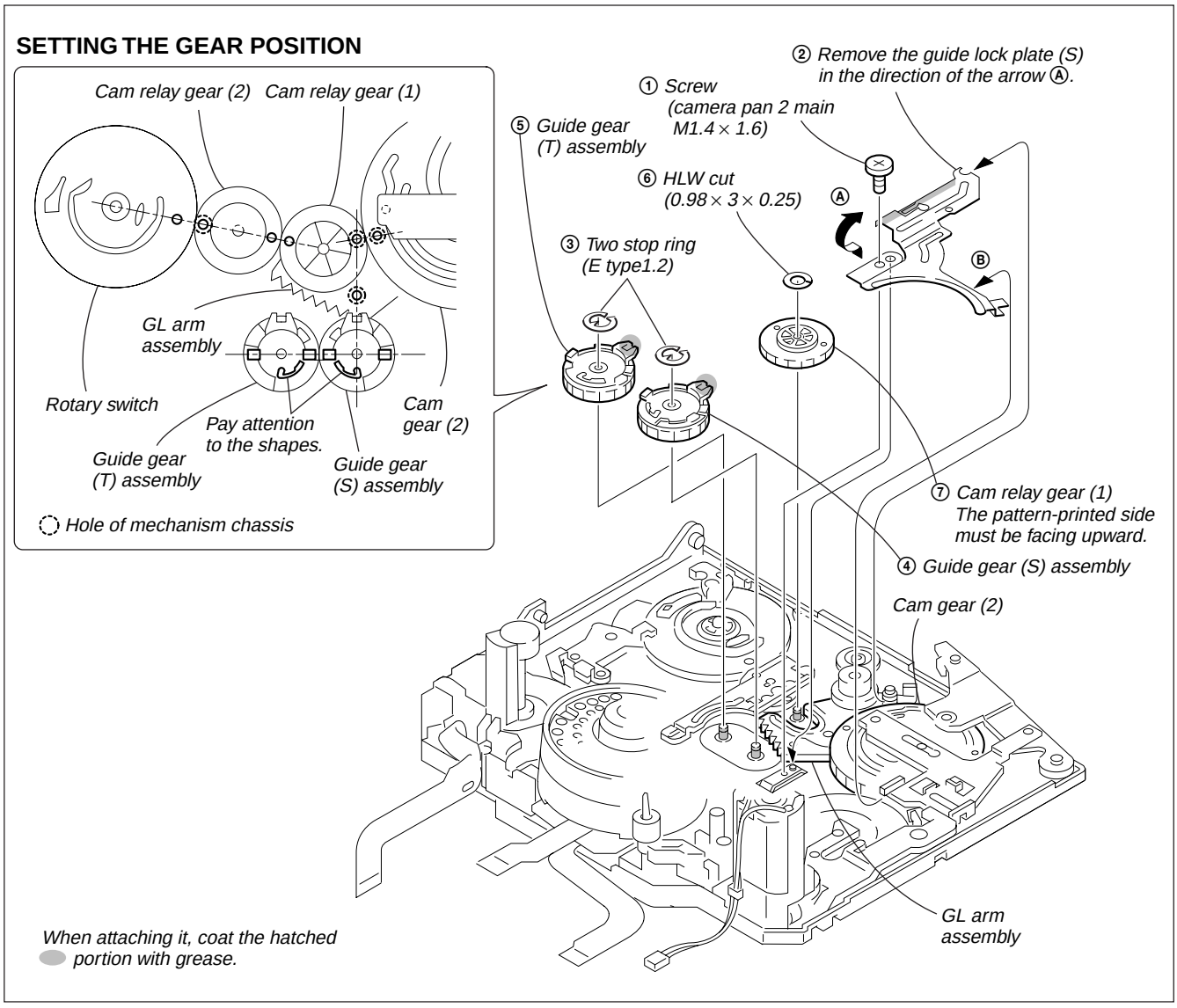

SETTING THE GEAR POSITION
Cam relay gear (2)
Cam relay gear (1)
GL arm assembly
Rotary switch
Pay attention to the shapes.
Cam gear (2)
Guide gear (T) assembly
Guide gear (S) assembly
Hole of mechanism chassis
② Remove the guide lock plate (S) in the direction of the arrow Ⓐ.
① Screw (camera pan 2 main M1.4 × 1.6)
⑤ Guide gear (T) assembly
⑥ HLW cut (0.98 × 3 × 0.25)
③ Two stop ring (E type1.2)
Ⓐ
Ⓑ
⑦ Cam relay gear (1) The pattern-printed side must be facing upward.
④ Guide gear (S) assembly
Cam gear (2)
GL arm assembly
When attaching it, coat the hatched portion with grease.

Fig. 4-17.

4-18. LD Gear 4, Cam Gear 1, HC Drive Arm

Remove in advance the HCL arm assembly and loading motor assembly beforehand. (Refer to 4-2.)

1. Removal procedure

1) Remove the LS chassis block assembly. (Refer to 4-10.)
2) Remove the guide lock plate (S). (Refer to 4-17.)
3) Remove the cover sheet ① and LD gear (4) ②.
4) Remove the T1 limiter arm ③ and cam gear (1) ④.
5) Remove the HC drive arm ⑤ in the direction of the arrow.

2. Attachment procedure

1) Attach the HC drive arm ⑤ under the drive base assembly.
2) Attach the cam gear (1) ④.
   The dowel of the HC drive arm ⑤ must be inserted into the groove on the lower side of the cam gear (1) ④.
   The in-phase markings of the cam gear (1) ④, cam gear (2) and cam relay gear (1) must be aligned.
3) Attach the LD gear (4) ② with the cover sheet ①.
4) Attach the guide plate (S).
5) Attach the LS chassis block assembly to the mechanical chassis. (Refer to 4-10.)
6) Clean the tape running path. (Refer to 2-2.)

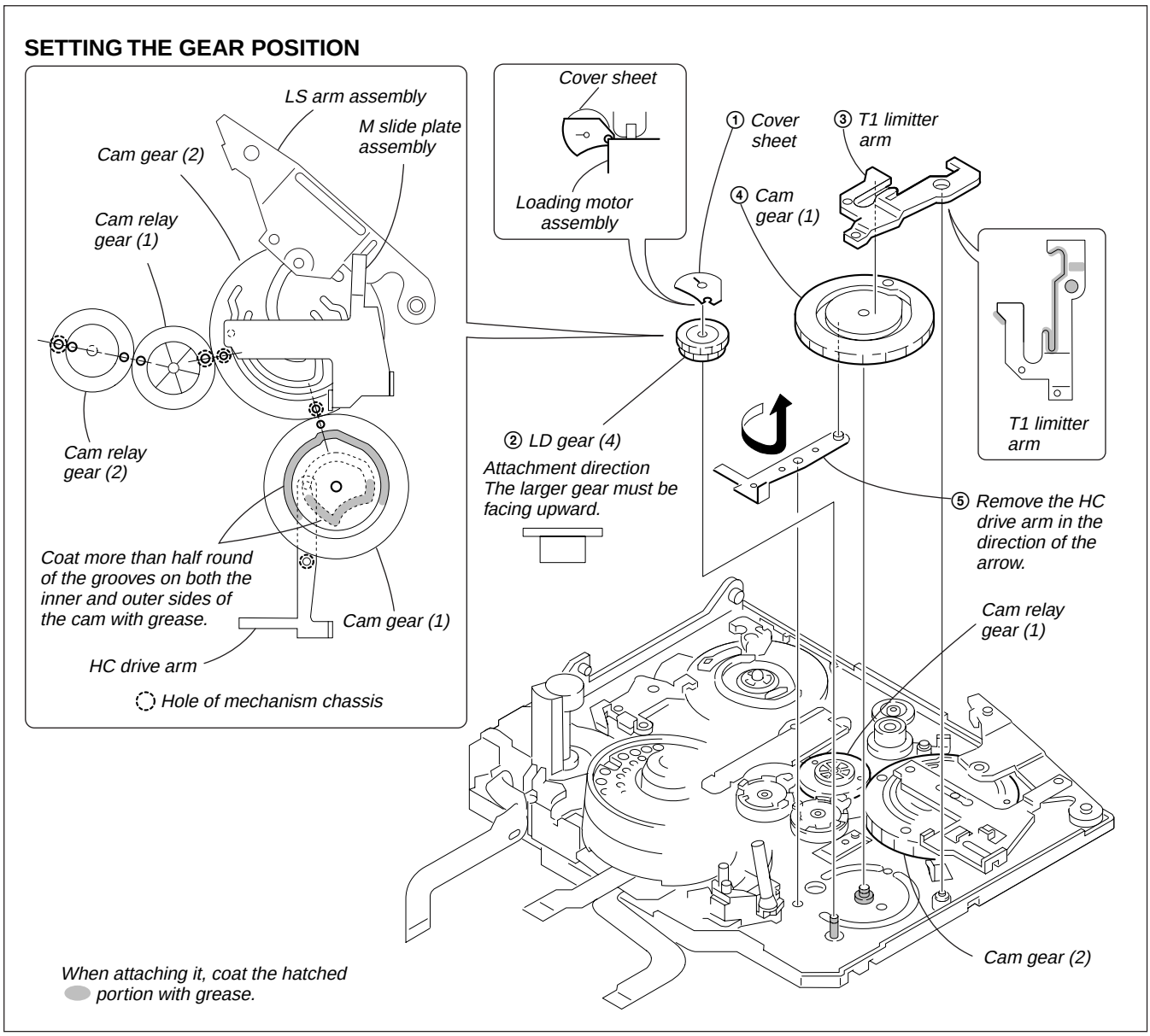

SETTING THE GEAR POSITION
LS arm assembly
M slide plate assembly
Cam gear (2)
Cam relay gear (1)
Cam relay gear (2)
Coat more than half round of the grooves on both the inner and outer sides of the cam with grease.
Cam gear (1)
HC drive arm
Hole of mechanism chassis
Cover sheet
Loading motor assembly
① Cover sheet
③ T1 limitter arm
④ Cam gear (1)
T1 limitter arm
② LD gear (4)
Attachment direction
The larger gear must be facing upward.
⑤ Remove the HC drive arm in the direction of the arrow.
Cam relay gear (1)
Cam gear (2)
When attaching it, coat the hatched portion with grease.

Fig. 4-18.

4-19. M Slide Plate Assembly, LS Arm Assembly, Cam Gear 2, GL Arm Assembly

1. Removal procedure

1) Remove the LS chassis block assembly. (Refer to 4-10.)
2) Remove the guide lock plate (S) (Refer to 4-17.)
3) Remove the relay gear ①.
4) Remove the M slide plate assembly ② in the direction of the arrow Ⓐ.
5) Remove the LS arm assembly ③ and LS arm roller ④.
6) Remove the cam gear (2) ⑤.
7) Remove the GL arm assembly ⑥ from the lower side of the cam relay gear (1) in the direction of the arrow Ⓑ.

Note: After removing the GL arm assembly, fix the guide gear (S/T) assembly.

2. Attachment procedure

1) Attach the GL arm assembly ⑥ to the shaft so that the GL arm assembly ⑥ is positioned under the cam relay gear (1) .

Note: The in-phase markings of the guide gear (S/T) assembly and GL arm assembly ⑥ must be aligned.

2) While aligning the cam gear (2) ⑤ with the dowel of the GL arm assembly, attach the cam gear (2) ⑤.

Note: The in-phase markings of the cam relay gear (1), cam gear (1) and cam gear (2) ⑤ must be aligned.

3) Attach the LS arm roller ④ to the LS arm assembly ③. While aligning them with the cam groove on the cam gear (2) ⑤, attach them.
4) Attach the M slide plate assembly ②.
5) Attach the relay gear ①.
6) Attach the guide lock plate (S). (Refer to 4-17.)
7) Attach the LS chassis block assembly to the mechaical chassis. (Refer to 4-10.)

Note: Check that the in-phase marking of each gear is aligned.

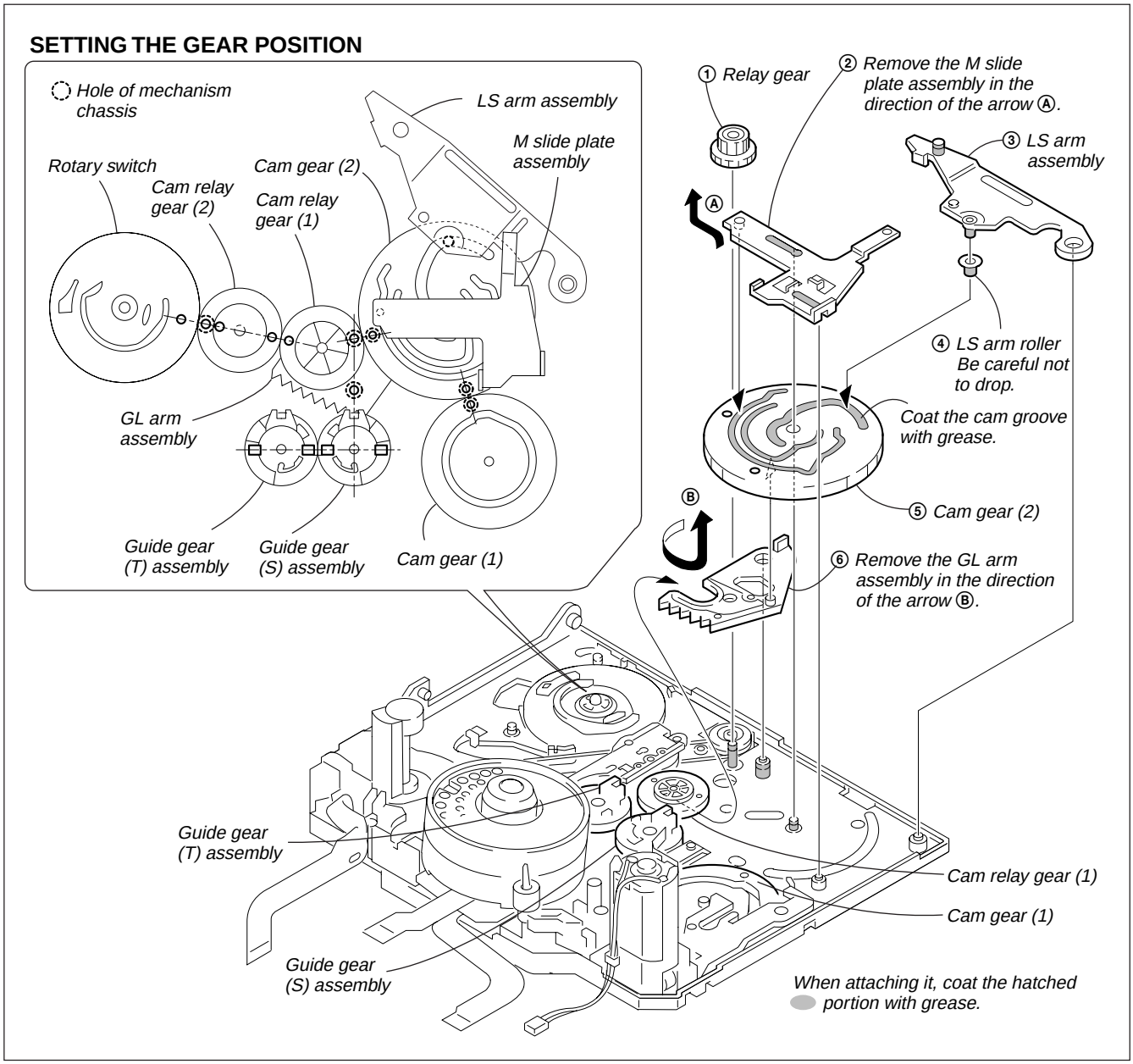

SETTING THE GEAR POSITION
Hole of mechanism chassis
LS arm assembly
M slide plate assembly
Rotary switch
Cam relay gear (2)
Cam gear (2)
Cam relay gear (1)
GL arm assembly
Guide gear (T) assembly
Guide gear (S) assembly
Cam gear (1)
① Relay gear
② Remove the M slide plate assembly in the direction of the arrow Ⓐ.
③ LS arm assembly
Ⓐ
④ LS arm roller Be careful not to drop.
Coat the cam groove with grease.
⑤ Cam gear (2)
Ⓑ
⑥ Remove the GL arm assembly in the direction of the arrow Ⓑ.
Guide gear (T) assembly
Cam relay gear (1)
Cam gear (1)
Guide gear (S) assembly
When attaching it, coat the hatched portion with grease.

Fig. 4-19.

5. Adjustment

5-1. Check and Adjustment of TG1 Back-tension Position

1. Check Procedure

1) Assemble the mechanism deck into the main unit.
2) Thread a normal tape and let the machine enter the PB (or REC) mode.
3) Check that the distance between the upper flange of the TG1 guide and the side surface of the LS chassis block is 12.0 ± 0.4 mm (range of fluctuation: 0.5 mm or less).

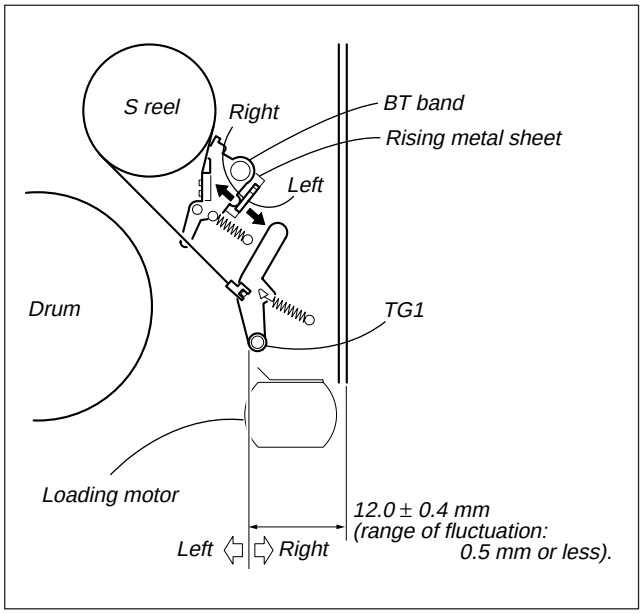


Fig. 5-1.

2. Adjustment Procedure

1) Remove the cassette compartment and the blind plate.
2) Adjust the position of the TG1 guide by changing the tilt of the rising metal sheet of the LS chassis block assembly.

5-2. Check and Adjustment of FWD/RVS Back-tension

1. Check Procedure

1) Install the mechanism deck in the main unit and set the take-up torque cassette (Ref. No. J-7).
2) Check the FWD/RVS take-up torque.
   Check the FWD torque in the PLAY state.
   Specified value: 7 to 12 gf•cm
   Check the RVS torque in the RVS state.
   Specified value: 19.5 to 29.5 gf•cm

2. Adjustment Procedure

1) If the value of the FWD torque is larger than the specifications, change the position where the TG1 arm spring is hooked in the direction of the arrow Ⓐ. If the value of the FWD torque is smaller than the specifications, change the position in the direction of the arrow Ⓑ.

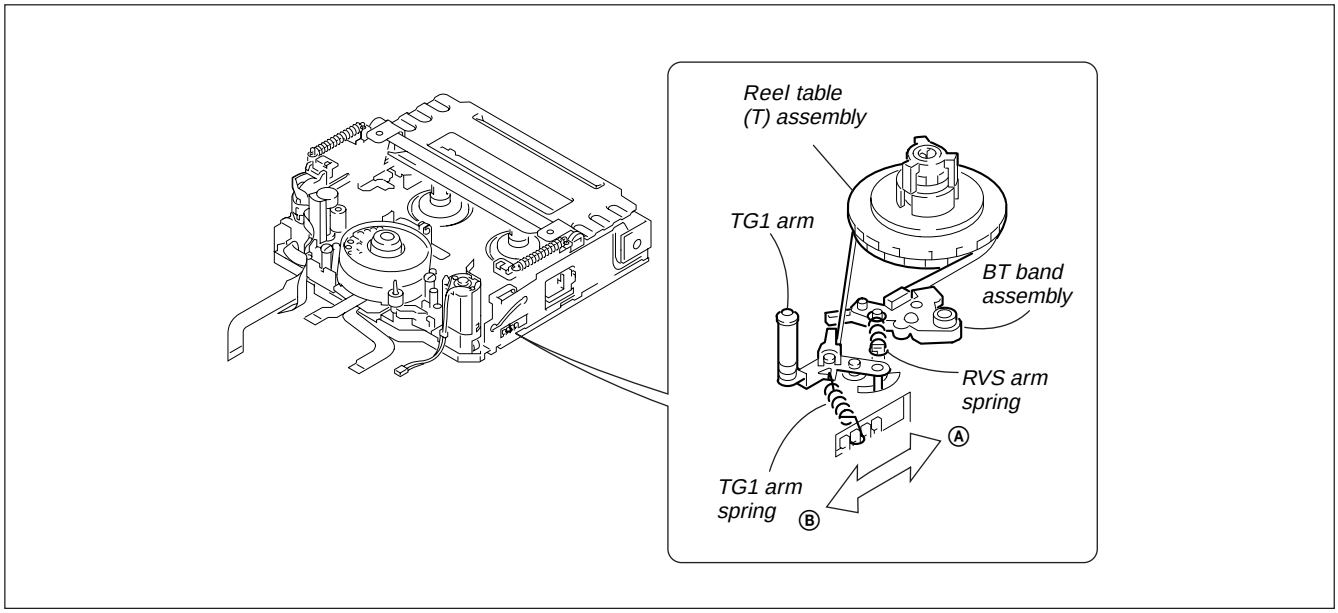


Fig. 5-2.

5-3. Capstan Motor Azimuth Position Adjustment

1. Check Procedure

1) Insert the thickness gauge (Ref. No. J-16) of 0.75 mm between the protrusion of the mechanism chassis and the capstan motor, and check the azimuth position.

2. Adjustment Procedure

1) Loosen the capstan azimuth adjustment screw (SANG camera pan 2 M1.4 × 4.5), and insert the thickness gauge (0.75 mm)(Ref. No. J-16) between the protrusion of the mechanism chassis and the capstan motor.
2) Slowly tighten the capstan azimuth adjustment screw until it slightly contacts the thickness gauge, and remove the thickness gauge.

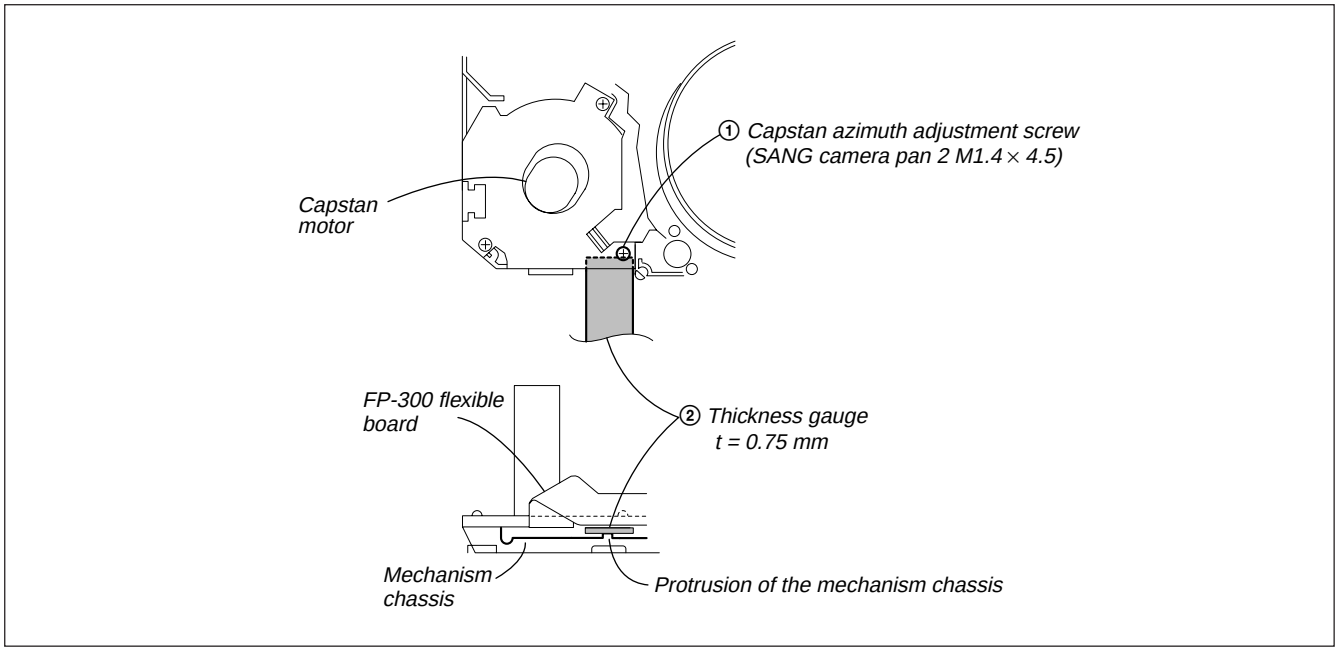


Fig. 5-3.

5-4. Tape Path Adjustment

Purpose: Adjust the linearity of the head.
If the adjustment is not correct:
Noise appears on the top and bottom of the screen when playing back the tape that is recorded by other recorders.

5-4-1. Adjustment Preparation

1) Clean the tape running surface (tape guides, drum, capstan shaft, pinch roller).
2) Connect the adjustment remote commander to the remote terminal.
3) Set the adjustment remote commander to the PATH mode (track shift mode)* and release the auto tracking.
4) Connect an oscilloscope as follows:
   CH1: Test connector' PB RF terminal
   External trigger: Test connector' RF SWP terminal
5) Playback the tracking alignment tape WR5-1NP (NTSC), WR5-1CP (PAL) (Ref. No. J-6).
6) Confirm that the RF waveform on scope is flat both at entrance side and exit side.
   If the RF waveform is not flat, perform the adjustment by referring to section 4-2.)
7) After the adjustment is completed, release the PATH mode (track shift mode)*.

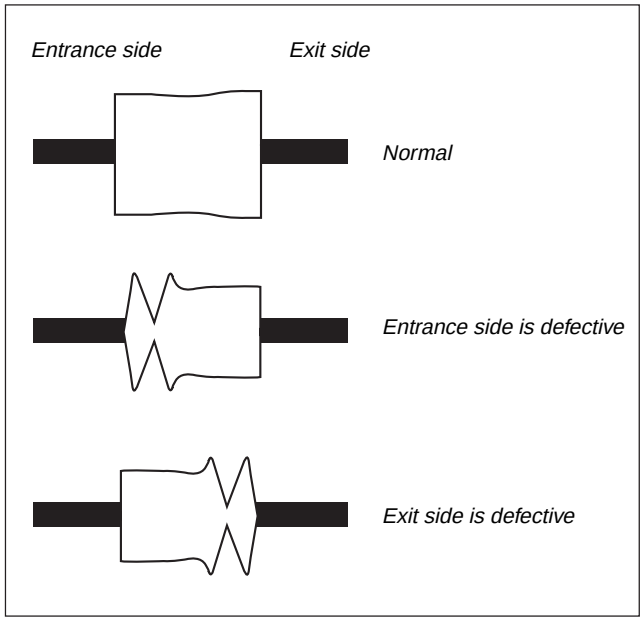


Fig. 5-4.

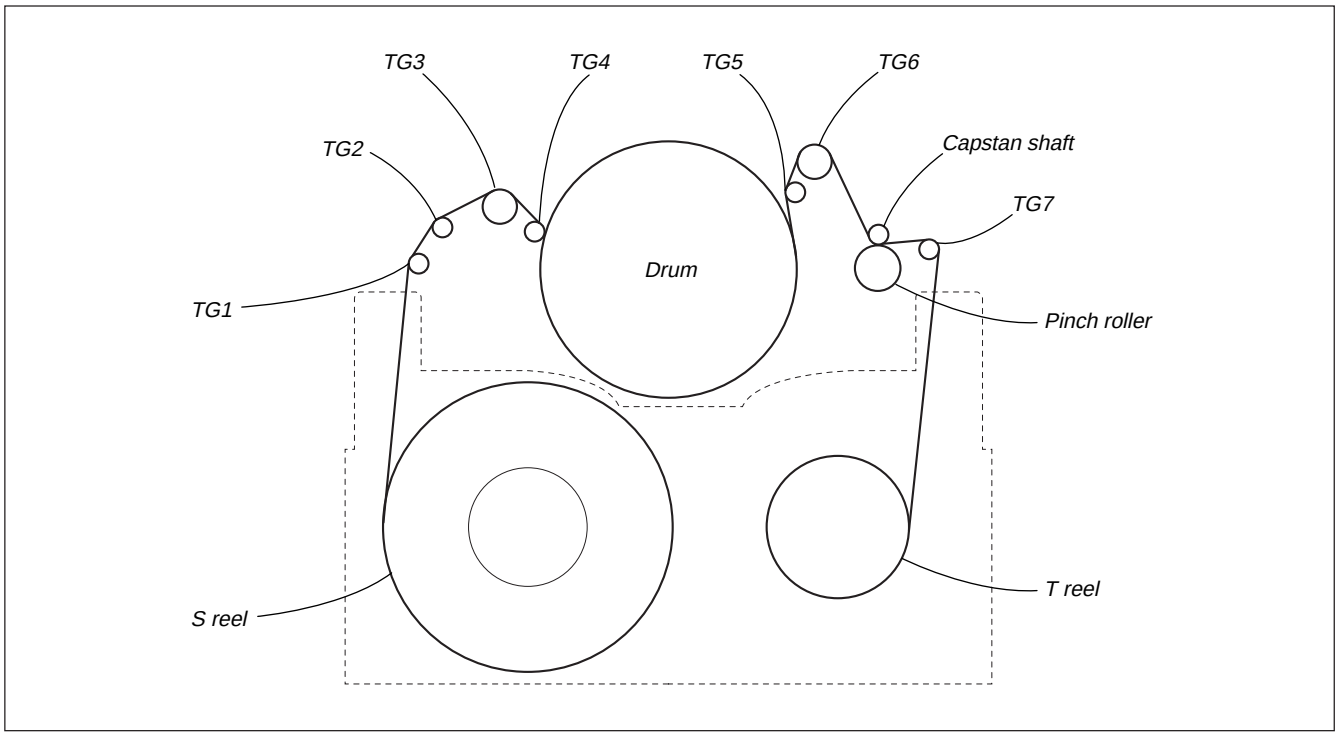


Fig. 5-5.

* **Setting and releasing the track shift mode**

In case of the DCR-TRV230

Setting
1. Select page: 0, address: 01 and set data: 01.
2. Select page: F, address: 22 and set data: 88, and press the PAUSE button.
3. Select page: 2, address: 2E and set data: 02. (Note)

Releasing
1. Select page: 0, address: 01 and set data: 01.
2. Select page: F, address: 22 and set data: 80, and press the PAUSE button.
3. Select page: 2, address: 2E and set data: 00.
4. Select page: 0, address: 01 and set data: 00. (Note)

Note: In case of the Digital8 only, set the data of page: 2, address: 2E.

5-4-2. Tracking Adjustment (Refer to Fig. 5-6.)

1) Playback the tracking alignment tape WR5-1NP (NTSC), WR5-1CP (PAL) (Ref. No. J-6).
2) Adjust the No.3 guide until the envelope at the entrance side waveform becomes flat.
3) Adjust the No.6 guide until the envelope at the exit side waveform becomes flat.

☆ The TG-3/6 zenith adjustment screws do not need to be adjusted.

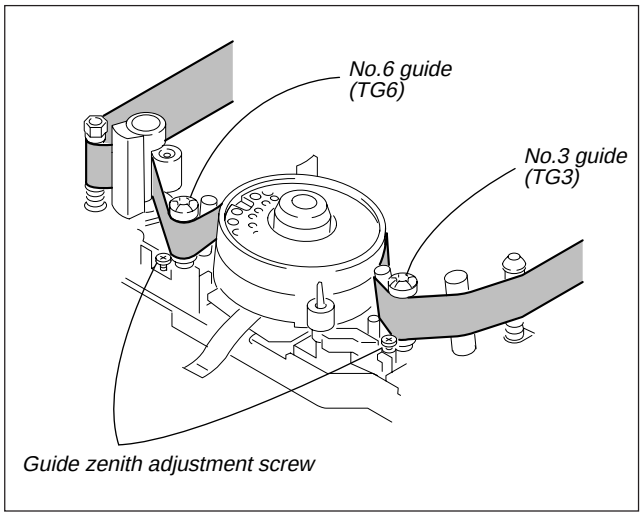


Fig. 5-6.

5-4-3. No.7 Guide (TG7) Adjustment (Refer to Fig. 5-7.)

1) Playback the tape and set the REV mode.
2) Confirm that tape slack does not occur in between the No.6 guide (TG6) ① and capstan ②. If any tape slack occurs, rotate the TG7 nut ④ of the No.7 guide (TG7) ③ to remove the tape slack.
3) Playback the tape again and confirm that tape slack does not occur between the capstan ② and No.7 guide (TG7) ③. If the tape slack occurs exceeding the specifications (specifications: 0.5 mm or less), rotate the TG7 nut ④ to make the tape slack below the specifications (0.5 mm). When the tape slack between the No.6 guide (TG6) ① and capstan ② is 0.3 mm or less in the REV mode, it means that the adjustment is completed.

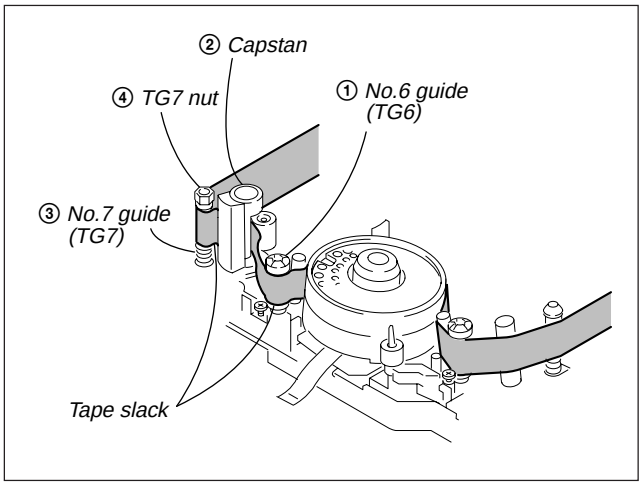


Fig. 5-7.

5-4-4. CUE and REV Waveform Check (Refer to Fig. 5-8)

1) Playback the tracking alignment tape WR5-1NP (NTSC), WR5-1CP (PAL)(Ref. No. J-6) and enter the REV mode.
   Confirm on an oscilloscope that the pitches between the peaks of the RF waveform are equally spaced for 5 seconds or more.
   If pitches between peaks of the RF waveform are not equal, perform sections "5-4-2 Tracking Adjustment" and "5-4-3 No. 7 Guide (TG7) Adjustment".
2) Enter the UCE mode. Confirm on an oscilloscope that the pitches between the peaks of the RF waveform are equally spaced for 5 seconds or more.
   If pitches between peaks of the RF waveform are not equal, perform section "5-4-2 Tracking Adjustment".

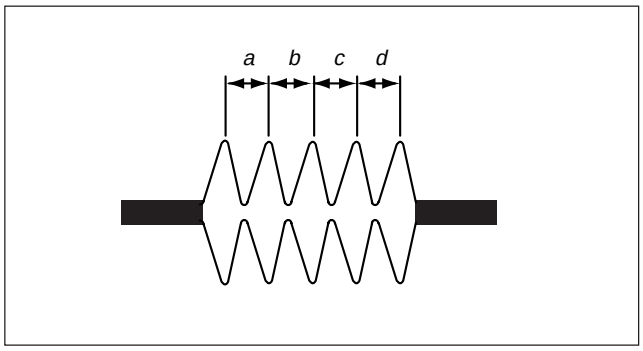


Fig. 5-8.

5-4-5. Check upon Completion of Adjustment

5-4-5-1. Tracking Check

1) Playback the tracking alignment tape in the PATH mode. Compare the amplitude of the RF waveform in the AUTO tracking mode and with that in the PATH mode. Confirm that the amplitude of the RF waveform decreases to about 3/4 when the tracking alignment tape is switched from the AUTO tracking mode to the PATH mode. (Refer to Fig. 5-9)
2) During step 1, confirm that the minimum amplitude (E MIN) is 65% or more of the maximum amplitude (E MAX) of the RF waveform. (Refer to Fig. 5-10)
3) Confirm that the RF waveform does not fluctuate too excessively.(Refer to Fig. 5-11)

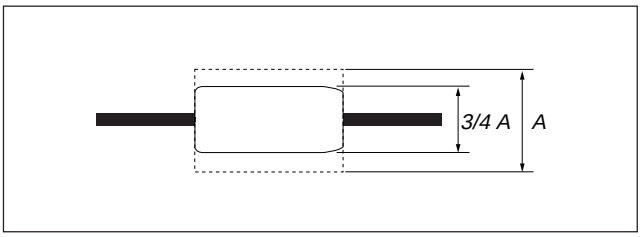


Fig. 5-9.

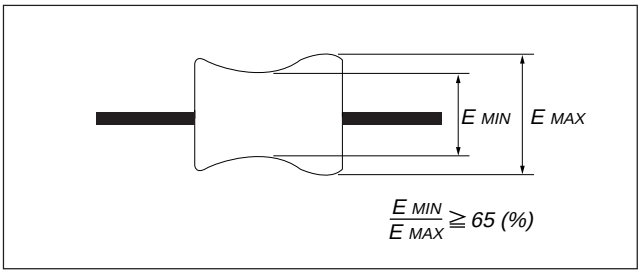


Fig. 5-10.

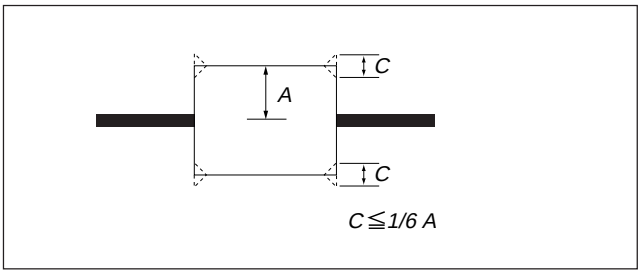


Fig. 5-11.

5-4-5-2. Rise-up Check (Refer to Fig. 5-12)

1) Playback the tracking alignment tape WR5-1NP (NTSC), WR5-1CP (PAL)(Ref. No. J-6).
2) Turn OFF the Track Shift mode.
3) Eject the cassette tape once. Then insert the cassette tape for loading again.
4) Confirm that the RF waveform rises up to the flat envelope within 3 seconds after the machine enters the PLAY mode. Check also that the tape slack does not occur at around the pinch roller.
5) Run the tape in the CUE/REV and the FF/REW mode. Then playback the tracking alignment tape and confirm the RF waveform rises up to the flat envelope within 3 seconds after the machine enters the PLAY mode. Check also that the tape slack does not occur at around the pinch roller.
6) Repeat the above steps 3) to 5) once again for re-check.

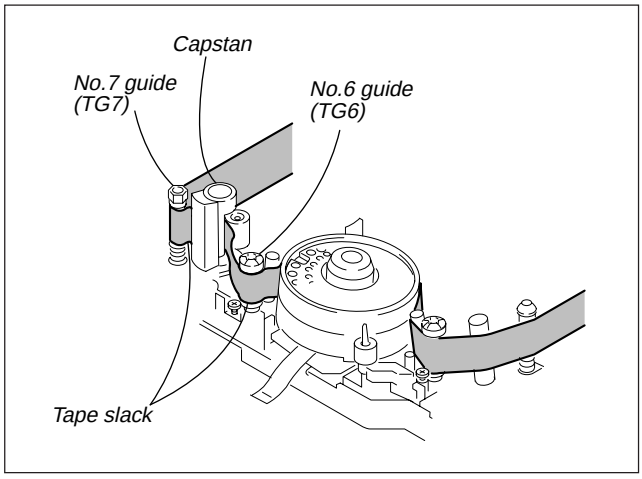


Fig. 5-12.

5-4-5-3. Tape Run Check (Refer to Fig. 5-13)

1) Playback the thin video tape such as P6-120MP (NTSC), P6-90MP (PAL). Confirm that tape does not float and the major tape curl of more than 0.3 mm does not occur at the top flange of the No. 3 guide (TG3), at the top flange of the No. 6 guide (TG6) and at both the top and bottom flanges of the No. 7 guide (TG7).
2) Confirm that tape does not float and the major tape curl of more than 0.3 mm does not occur at the flanges of the respective guide when the FF button is pressed during PLAY mode to enter the CUE mode and when the REW button is pressed during PLAY mode to enter the REV mode.

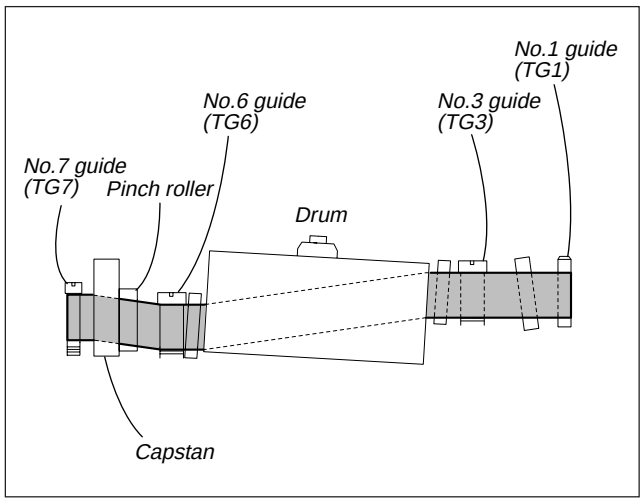
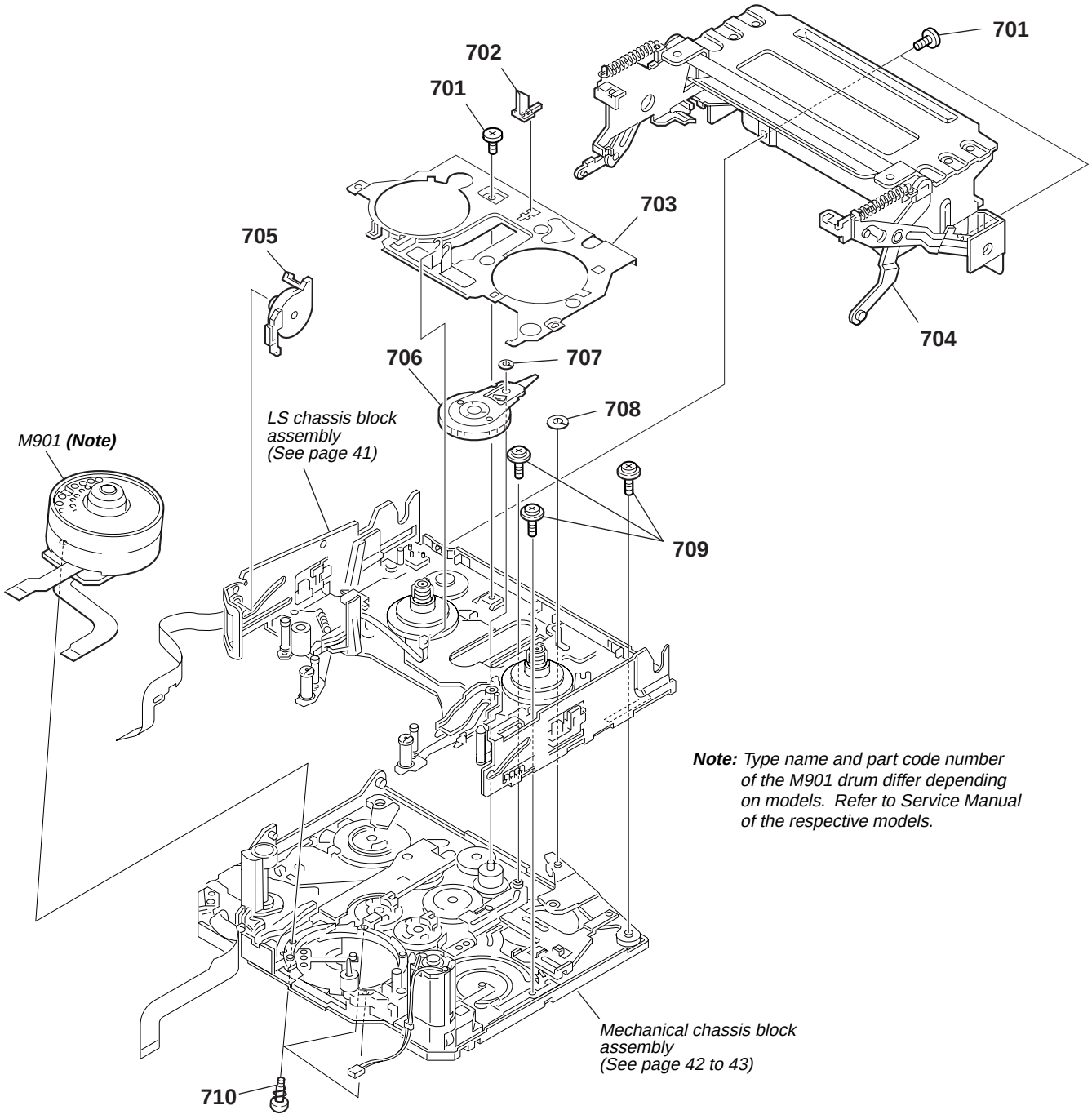


Fig. 5-13.

6. Exploded Views

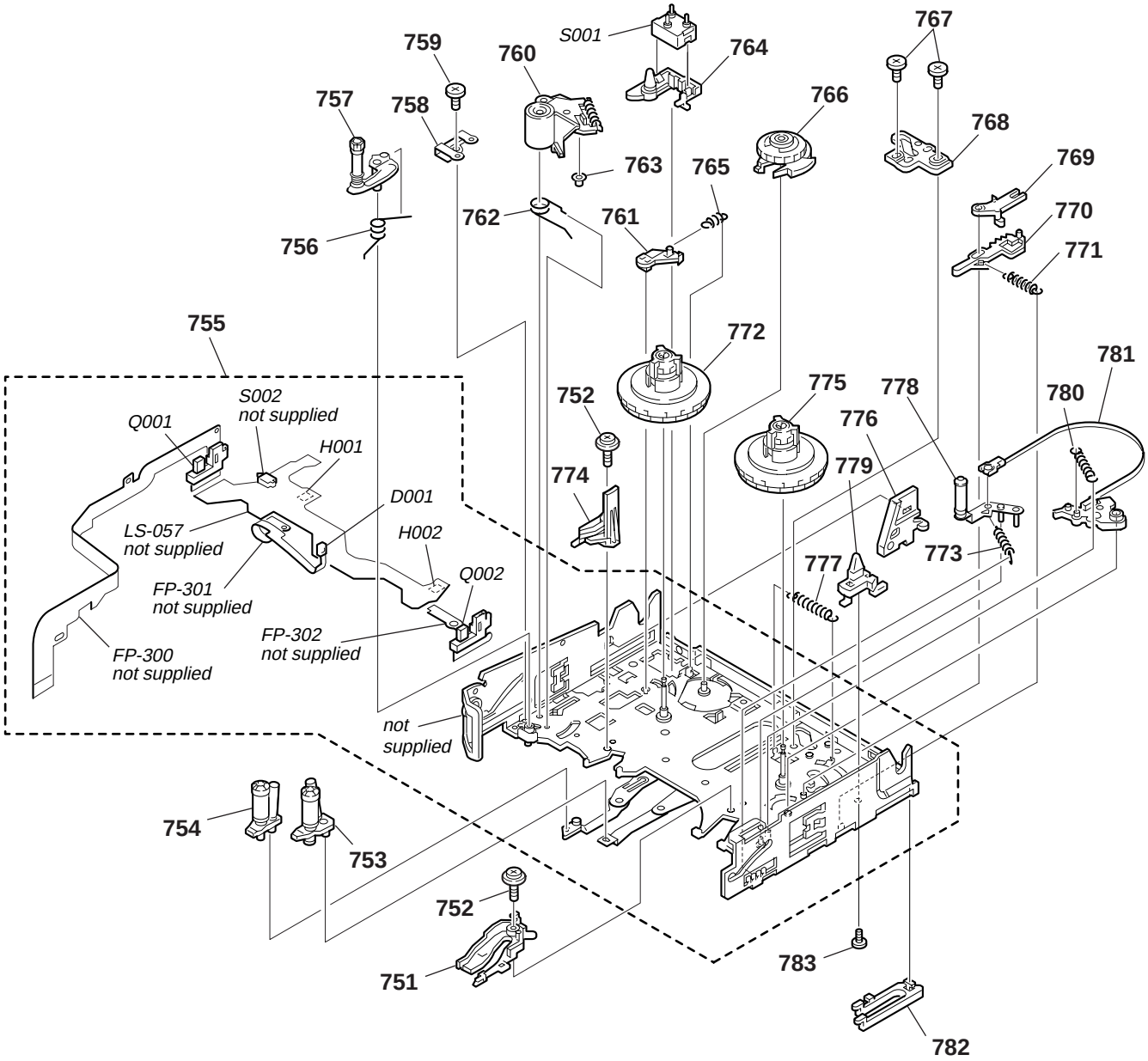
6-1. Cassette Compartment Assy, Drum Assy



Note: *Type name and part code number of the M901 drum differ depending on models. Refer to Service Manual of the respective models.*

Ref. No.	Part No.	Description	Remarks
701	3-065-932-01	PAN (2 MAIN M1.4X1.6), CAMERA	
702	3-065-895-01	LEVER, REEL RELEASE	
703	3-065-896-01	PLATE, BLIND	
704	X-3951-298-1	CASSETTE COMPARTMENT ASSY	
705	X-3951-302-1	DAMPER ASSY	
706	X-3951-297-1	GEAR ASSY, R DRIVE	
707	3-065-840-01	CUT (0.98X3X0.13), LUMILER (W)	
708	3-065-935-01	HLC CUT (1.8X4X0.5)	
709	3-947-503-01	SCREW (M1.4)	
710	X-3951-299-1	SCREW ASSY, DRUM FITTING	
M901	— Note —	DRUM	

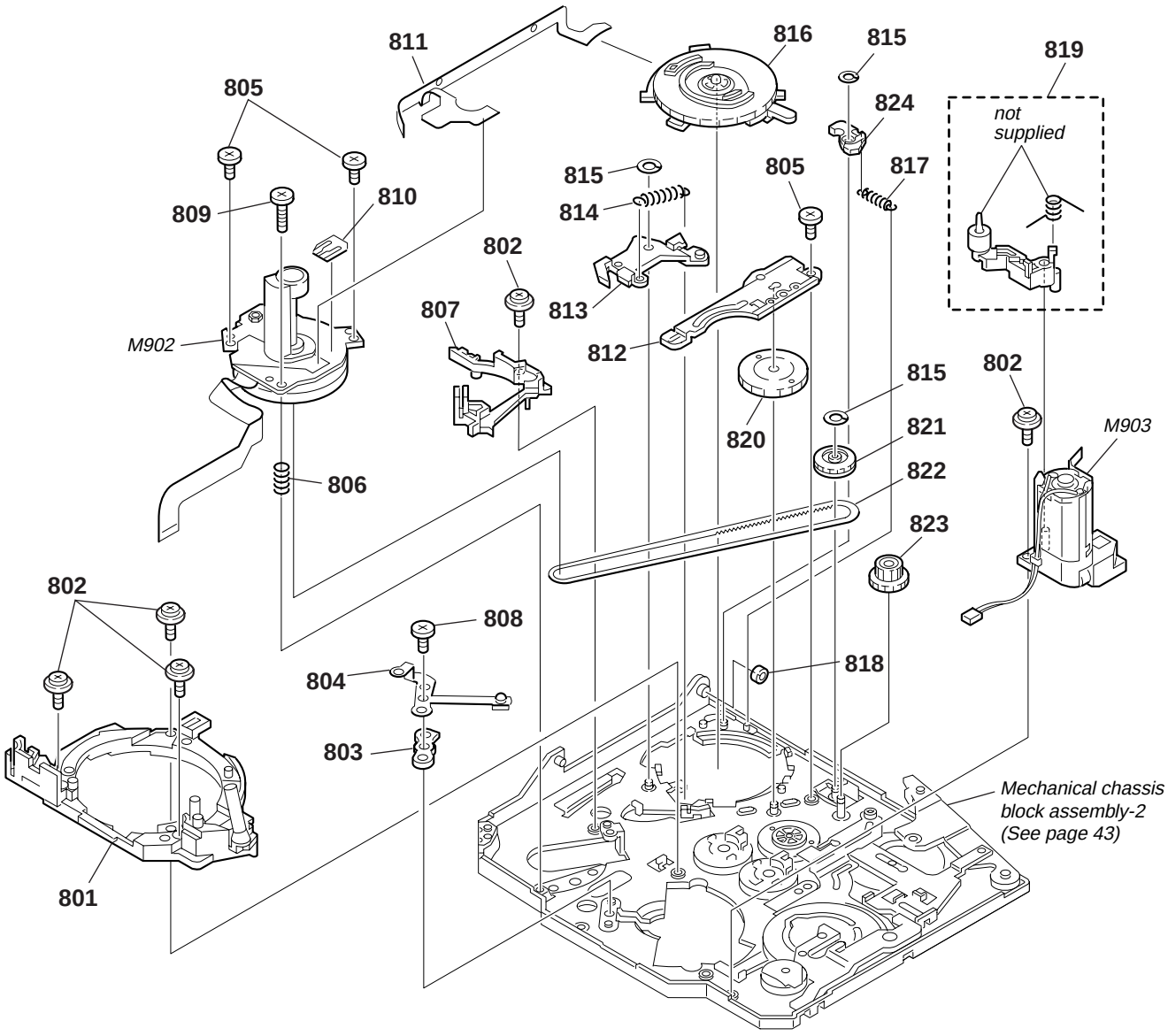
6-2. LS Chassis Block Assembly



Ref. No.	Part No.	Description	Remarks
751	3-065-822-01	RAIL (S), GUIDE	
752	3-947-503-01	SCREW (M1.4)	
753	A-7096-416-A	BASE (S) BLOCK ASSY, GUIDE	
754	A-7096-415-A	BASE (T) BLOCK ASSY, GUIDE	
755	A-7096-426-A	CHASSIS ASSY, LS	
756	3-065-802-01	SPRING, TG7 ARM	
757	A-7096-414-A	ARM BLOCK ASSY, TG7	
758	3-065-801-01	RETAINER, TG7	
759	3-065-932-01	PAN (2 MAIN M1.4X1.6), CAMERA	
760	X-3951-303-1	ARM ASSY, PINCH	
761	3-065-823-01	ARM, T RATCHET	
762	3-065-794-01	ROAD (SPR), PINCH ARM	
763	3-065-792-01	ROLLER, P LIM ARM	
764	3-065-834-01	GUIDE (T), CASSETTE	
765	3-065-824-01	SPRING, T RATCHET	
766	A-7096-417-A	SOFT ASSY, T	
767	7-627-852-38	SCREW,PRECISION +P1.7X1.8 TYPE3	
768	3-065-832-01	PLATE, LS CAM	
769	3-065-828-01	ARM, S RATCHET	
770	3-065-829-01	PLATE, S RATCHET (RE)	

Ref. No.	Part No.	Description	Remarks
771	3-065-830-01	SPRING, S RATCHET	
772	X-3951-288-1	TABLE (T) ASSY, REEL	
773	3-065-819-01	SPRING, TG1 ARM	
774	3-065-821-01	RAIL (T), GUIDE	
775	X-3951-289-1	TABLE (S) ASSY, REEL	
776	3-065-833-01	GUIDE, LOCK	
777	3-065-831-01	PLATE (SPR), RE RETURN	
778	X-3951-304-1	ARM ASSY, TG1	
779	3-065-835-01	GUIDE (S), CASSETTE	
780	3-065-820-01	SPRING, RVS ARM	
781	X-3951-296-1	BAND (ASSY), BT	
782	3-065-836-01	COVER, LS GREASE	
783	3-067-167-01	SCREW (M1.4X2), CAMERA TAPPING	
D001	8-719-988-42	DIODE GL453 (TAPE LED)	
H001	8-719-033-37	ELEMENT, HALL HW-105C (T REEL)	
H002	8-719-033-37	ELEMENT, HALL HW-105C (S REEL)	
Q001	8-729-907-25	PHOTO TRANSISTOR PT4850F (TAPE TOP)	
Q002	8-729-907-25	PHOTO TRANSISTOR PT4850F (TAPE END)	
S001	1-692-614-11	SWITCH, PUSH (3 KEY) (REC PROOF)	

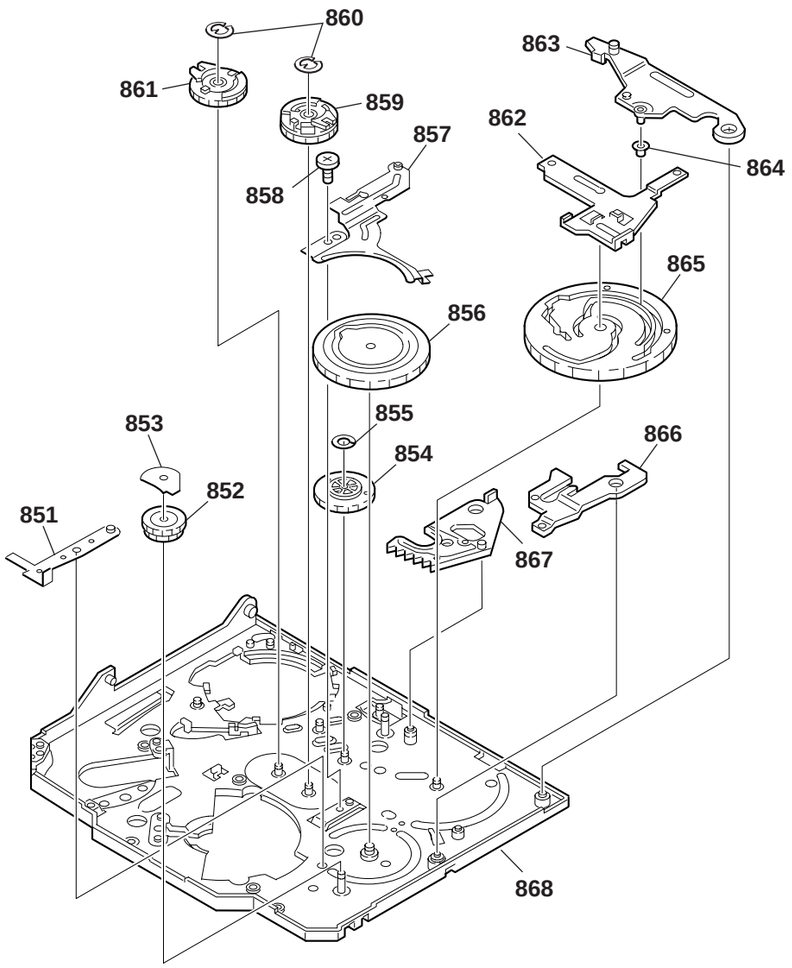
6-3. Mechanical Chassis Block Assembly-1



Ref. No.	Part No.	Description	Remarks
801	A-7096-422-A	BASE ASSY, DRUM	
802	3-947-503-01	SCREW (M1.4)	
803	3-065-928-01	SPACER, GROUND	
804	3-065-927-01	GROUND, DRUM	
805	3-065-932-01	PAN (2 MAIN M1.4X1.6), CAMERA	
806	3-067-154-01	SPRING, CAPSTAN	
807	3-065-931-01	RAIL (T2), GUIDE	
808	X-3947-398-1	SCREW ASSY, M1.7 PW	
809	3-065-933-01	PAN (2 MAIN 1.4X4.5), CAMERA	
810	1-677-049-11	FP-228 FLEXIBLE BOARD (DEW SENSOR)	
811	1-680-434-11	FP-299 FLEXIBLE BOARD	
812	3-065-877-01	PLATE (T), GUIDE LOCK	
813	X-3951-301-1	PLATE ASSY, PINCH PRESSURE	

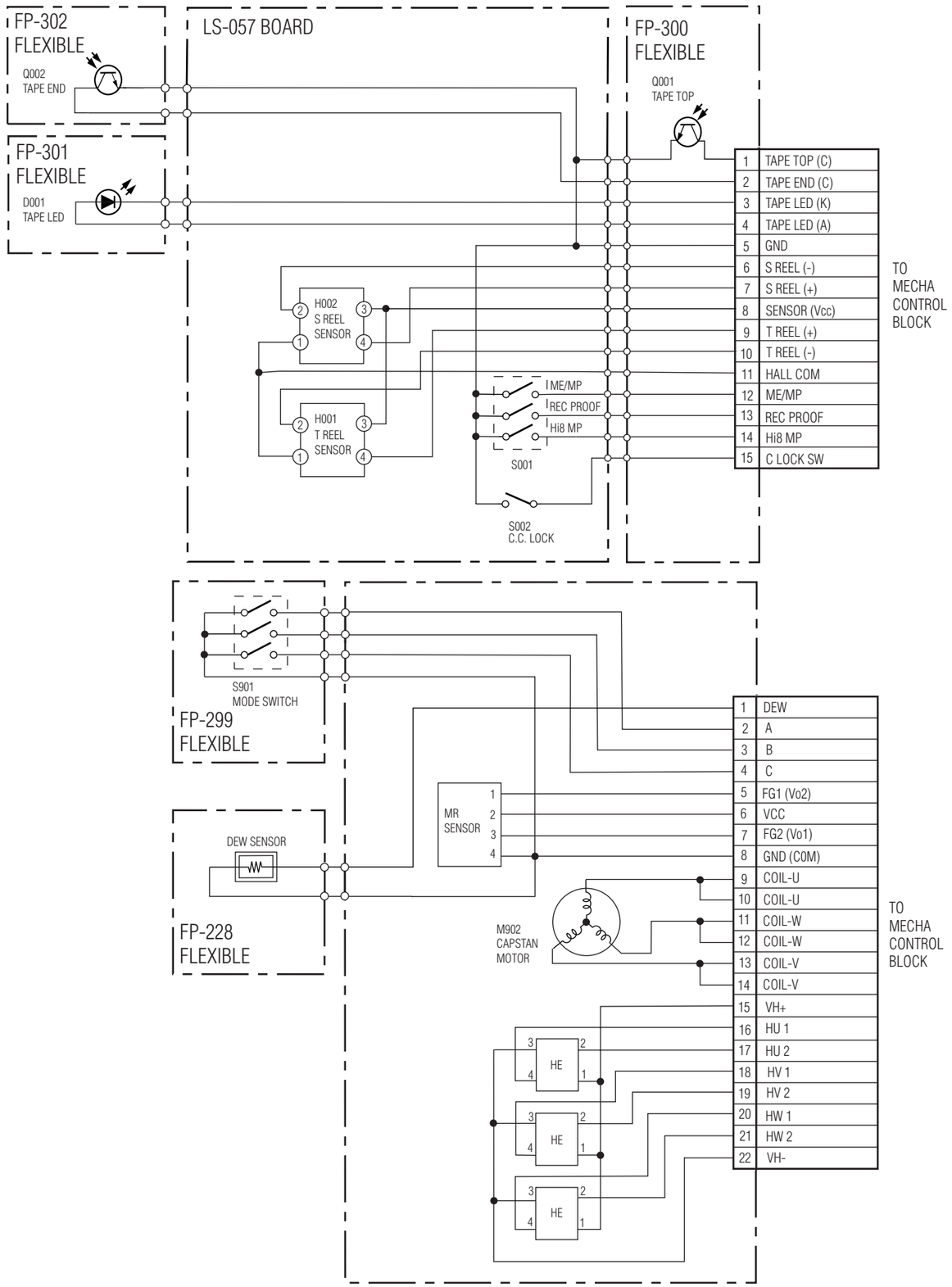
Ref. No.	Part No.	Description	Remarks
814	3-065-881-01	SPRING, P PRESSURE PLATE	
815	3-065-934-01	HLW CUT 0.98X3X0.25	
816	1-786-096-11	SWITCH, ROTARY	
817	3-065-898-01	SPRING, EJECT ARM	
818	3-065-870-01	ROLLER, LS GUIDE	
819	A-7096-421-A	ARM ASSY, HCL	
820	3-065-918-01	GEAR (2), CAM RELAY	
821	A-7096-419-A	GEAR ASSY, CHANGE	
822	3-065-902-01	BELT, TIMING	
823	3-065-905-01	GEAR, RELAY	
824	3-065-882-01	ARM, EJECT	
M902	8-835-701-01	MOTOR, DC SCE13A/C-NP (CAPSTAN)	
M903	A-7096-420-A	MOTOR ASSY, LD (LOADING)	

6-4. Mechanical Chassis Block Assembly-2

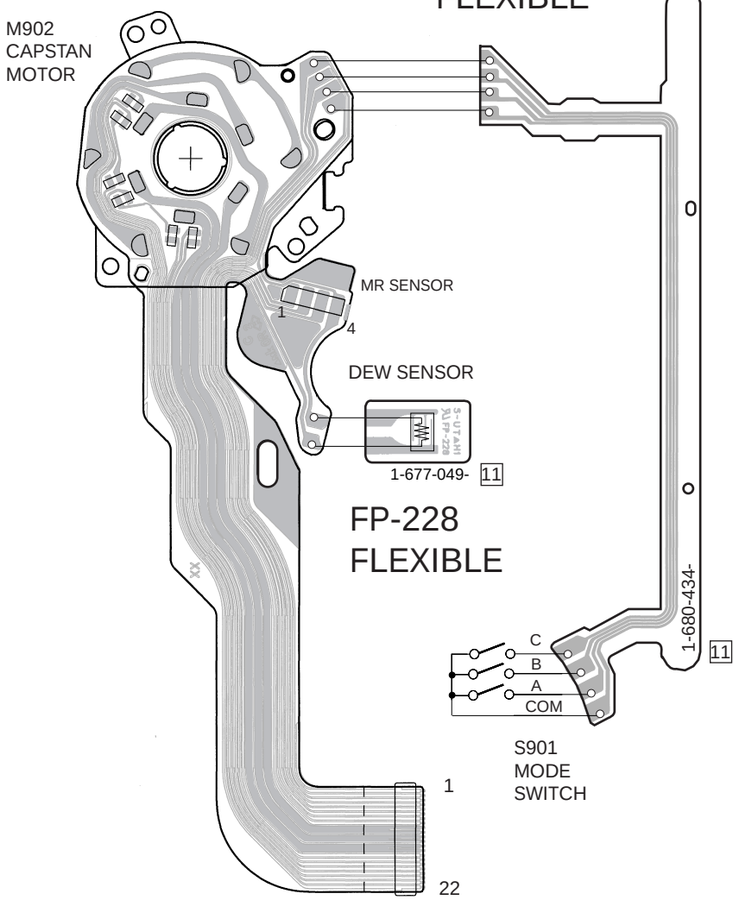


Ref. No.	Part No.	Description	Remarks
851	3-065-920-01	ARM, HC DRIVE	
852	3-065-913-01	GEAR (4), LD	
853	3-065-914-01	SHEET, COVER	
854	3-065-917-01	GEAR (1), CAM RELAY	
855	3-065-934-01	HLW CUT 0.98X3X0.25	
856	3-065-915-01	GEAR (1), CAM	
857	3-065-878-01	PLATE (S), GUIDE LOCK	
858	3-065-932-01	PAN (2 MAIN M1.4X1.6), CAMERA	
859	A-7096-413-A	GEAR (S) ASSY, GUIDE	
860	7-624-101-04	STOP RING 1.2 (E TYPE)	
861	A-7096-412-A	GEAR (T) ASSY, GUIDE	
862	X-3951-307-1	PLATE ASSY, M SLIDE	
863	X-3951-305-1	ARM ASSY, LS	
864	3-065-901-01	ROLLER, LS ARM	
865	3-065-916-01	GEAR (2), CAM	
866	3-065-919-01	ARM, T1 LIMITTER	
867	X-3951-308-1	ARM ASSY, GL	
868	X-3951-300-1	CHASSIS ASSY, MECHANICAL	

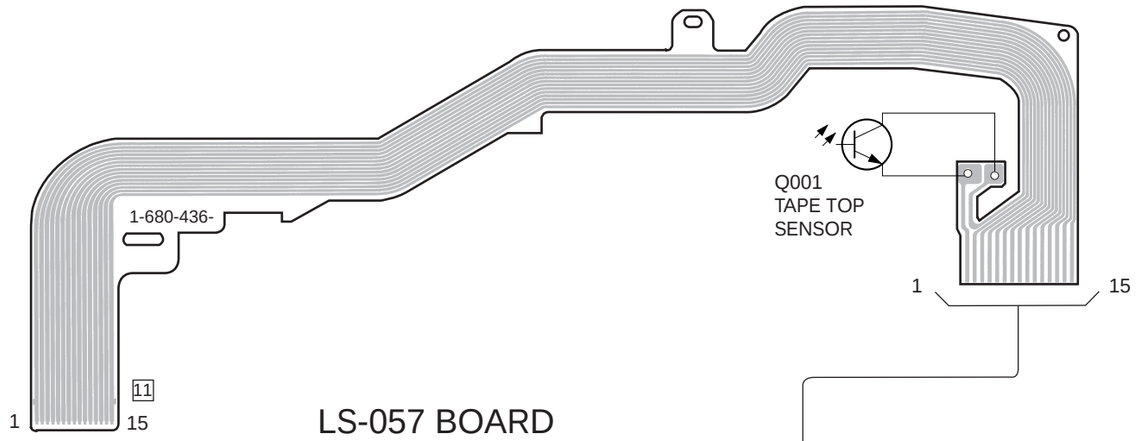
7. Printed Wiring Boards and Schematic Diagrams



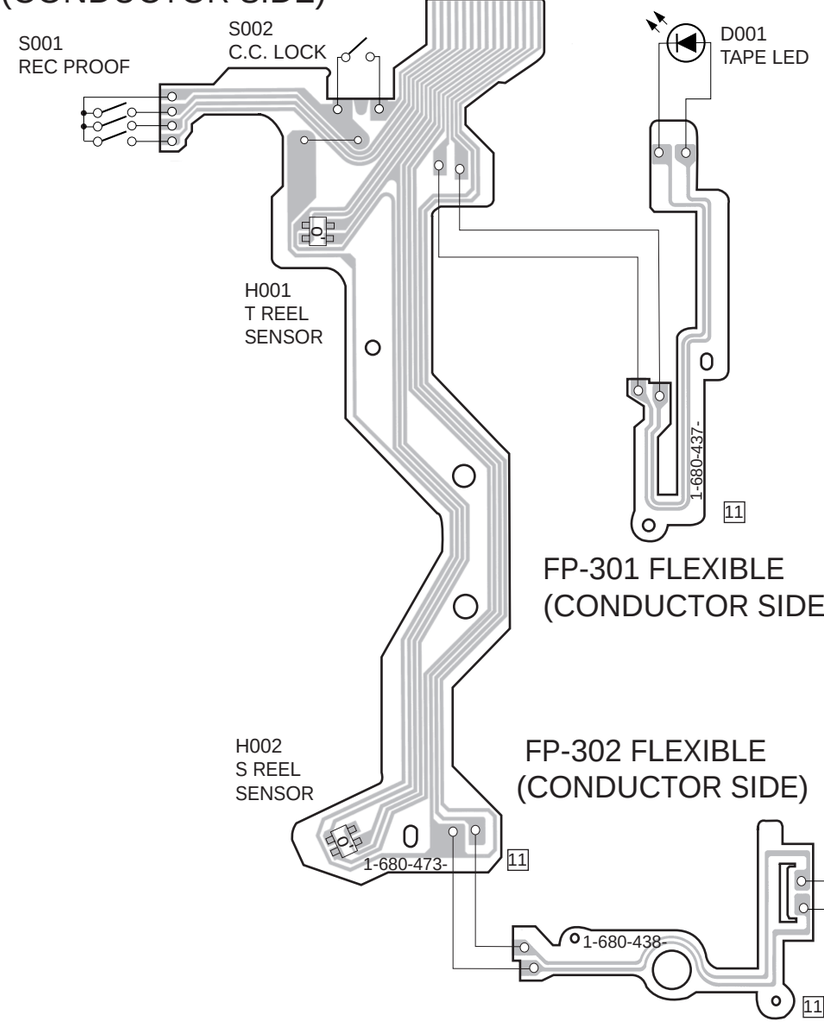
FP-299 FLEXIBLE



FP-300 FLEXIBLE (COMPONENT SIDE)



LS-057 BOARD (CONDUCTOR SIDE)



9-929-861-11

Sony Corporation
Personal VIDEO Products Company

2000L1600-1
Printed in Japan © 2000.12
Published by Safety & Service Engineering Dept.